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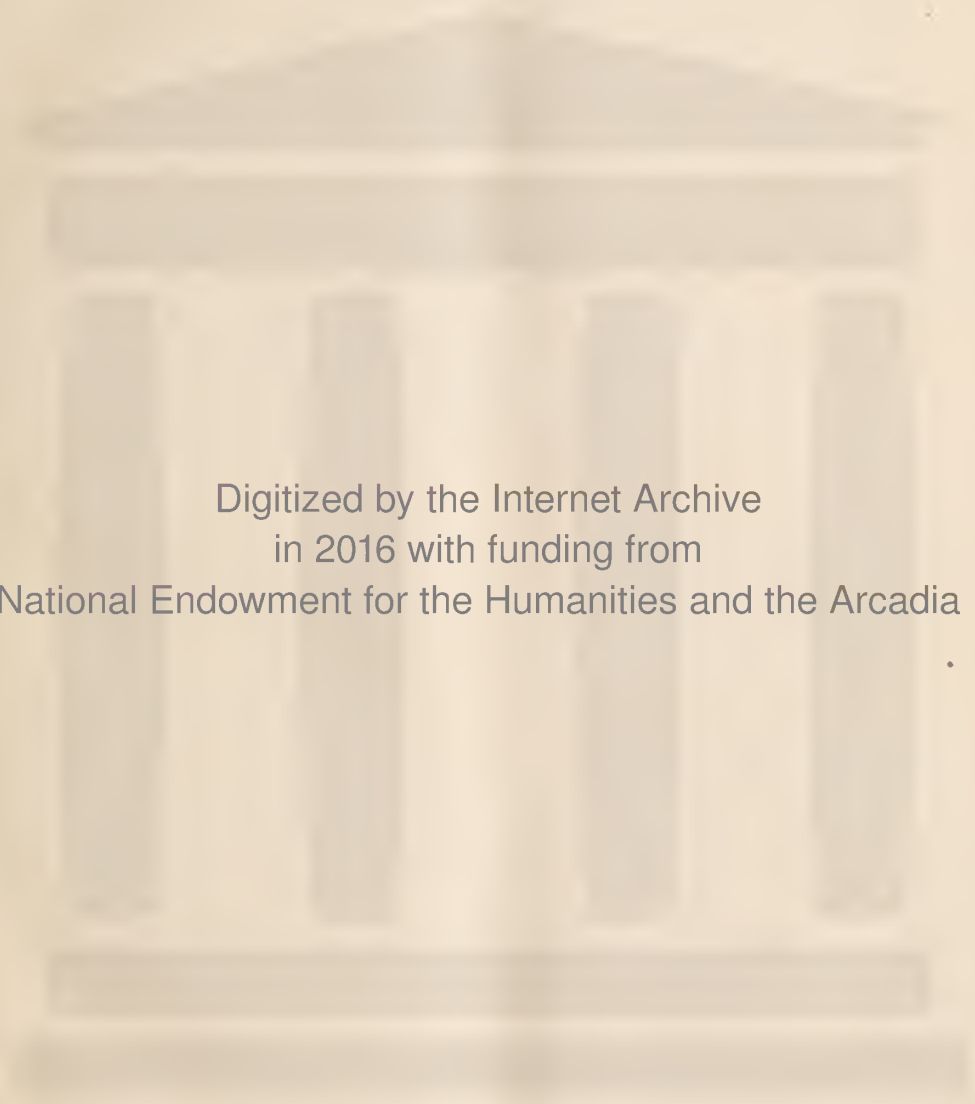
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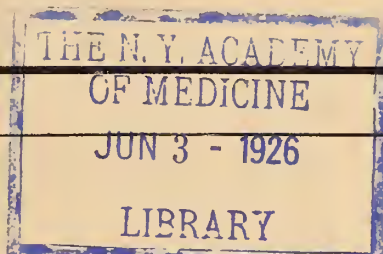
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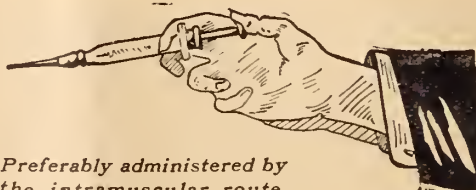
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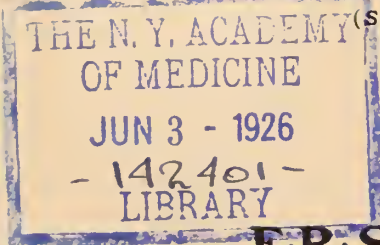
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(Stokes and Behn, *Jour. A.M.A.*, July 26, 1924, p. 245.)



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MECHANICAL PROBLEMS IN ADVANCED PULMONARY TUBERCULOSIS*

BY ORVILLE EGBERT, M. D.
EL PASO, TEXAS

(*Read before the Tenth Annual Meeting of the Medical & Surgical Association
of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924.)

It is with some misgiving that we dare to place emphasis on mechanical problems in pulmonary tuberculosis, for the problem suggests the answer. Obviously, meet a mechanical problem with mechanics. Someone has written: "We shudder to think of the sanatorium being invaded by the surgeon." But tuberculosis has had humanity shuddering for centuries and one shudder more or less does not seem valid reason for abandoning consideration of pulmonary tuberculosis from a mechanical hypothesis.

Febrile tuberculosis manifesting itself by pulmonary infiltration, in the light of existing knowledge, is a hygienic problem pure and simple. Not only is intensive hygienic treatment essential, but our conservative students seem to go further and advise that anything other than hygiene is contraindicated. But when the advanced stage of pulmonary tuberculosis is reached we have a far different picture. Recall briefly the pathology in advanced pulmonary tuberculosis.

The parenchyma in varying degrees is destroyed, and is replaced by fibrous tissue. Again, nature in her effort to wall off the infiltrating process devitalizes the area, or we have multiple small areas of necrosis coalescing, either process resulting in excavation. These cavities vary in size from ever so small to cavities consuming an entire lobe and even the entire lung. They may exist as single, multiple or multilocular cavities. Because the tubercle bacillus shows elective action for upper lobes, the great majority of cavities occur there.

The walls of these cavities may be cauliflower-like with practically no walling by fibrous changes. Others have moderately thick fibrous walls but without sufficient density to produce much rigidity. Still others have dense, fibrous walls, or calcified walls, that would resist efforts at collapse or would fail to heal even if the collapse was forced.

The next pathology of importance in advanced pulmonary tuberculosis, and the one standing in the way of successful attack on the cavity, is pleuritis. The chronicity of pulmonary tuberculosis coupled with the occasional acute exacerbations go to produce marked pleuritic changes in nearly every case. The visceral pleura in the region of the cavity is always thickened and adhesions to the parietal pleura are usually so extensive that the pleural space is absolutely obliterated. The acute exacerbations have usually extended the pleuritis from the original focus to the rest of the pleura so that there exist pleuritic adhesions over areas of the lung whose parenchyma is not necessarily infiltrated.

These pleuritic changes coupled with cavitation changes, particularly when unilateral, often distort the position of the thoracic viscera. The contraction of the lung incident to extensive fibrosis and cavitation, when adhered to the parietal walls, drags the mediastinal contents to the affected side. It is also conducive to compensatory changes on the part of the better lung, it often becoming greatly enlarged and emphysematous.

We shall not attempt to deal in this paper with complications such as infected pneumothorax, empyema, et cetera, where other therapeutic agents supersede or conjoin with mechanical efforts.

Now a few points of anatomy and physiology which we must take true cognizance of, along with pathology, to produce a true mechanical hypothesis in our consideration of advanced tuberculosis. The lung is suspended in the rigid bony thorax for two reasons; protection of a vital organ and to resist the atmospheric pressure making it possible for the intrapulmonary pressure to increase in the act of inspiration. Another point to consider relative to the bony thorax; the first rib circumventing the apex is short, thick, not twisted upon itself and is rigid and almost motionless in the respiratory act.

Suspended in this bony thorax are two multilobar, soft, highly vascular, air-containing, ever moving lungs. Each qualification is significant. Suspended in the bony thorax the lungs resist external pressure, atmospheric or otherwise. Remove the bony protection and they collapse. Being one of the paired organs makes it possible for life to exist on one lung. The lungs being multilobar is of the same advantage as being bilateral. In truth we have five lungs and the multiplicity of the lobes suggests conservation of the unaffected lobes in tuberculosis. The fact that the lung is soft and elastic makes possible expansion and contraction and makes possible intrathoracic collapse. Being air containing, collapse of the lung means collapse of the alveoli. Retain the collapse a sufficient length of time and the alveoli are destroyed; the lung may reexpand and be air containing, but few, if any, of the alveoli return to function. This suggests conservation of all normal functioning lung and a hesitation to collapse a normal lower lobe in our effort to obliterate upper lobe trouble. The great vascularity of the lung which contains several times its own weight in blood carries always a great danger of hemorrhage where any ulcerative process is present. This great amount of blood contained in the lungs suggests a stasis accentuated by gravity. Could it be possible that the lower lobes are comparatively free from tuberculosis because of increased amount of blood due to gravity? This is possibly plausible when we consider that patients placed in bed on their backs a greater part of the time usually heal their lesions posteriorly before they do the anterior involvement. The fact that the

lungs in their normal function are ever in motion is one of the most important reasons why tuberculosis so successfully attacks the lung. Those organs or structures that can be placed in absolute rest readily heal, but the lung rest is only a relative state unless placed at absolute rest by some mechanical interference.

The most important agent in the respiratory cycle is the diaphragm which comes itself into the thoracic cavity to lessen that cavity's space thereby compressing the lung. The phrenic nerve which supplies it, when paralyzed will cause the hemisphere of the diaphragm on that side to ascend permanently into its half of the chest thereby producing a permanent partial collapse of the lung.

In a series of twenty autopsies done by the Clinical and Pathological Society of El Paso upon cases dying of advanced tuberculosis the following was noted:

In every case there was a cavity of an upper lobe.

In two cases there were bilateral cavities.

In six cases there were multilocular cavities.

In every case there was a total obliteration of the pleural space surrounding the upper lobe where the cavity was.

In one-half the cases the lower lobes were not extensively infiltrated with tubercles, and adhesions over the lower lobes were few and delicate.

In six cases the sheets of adhesions were so dense over the lower lobes, including attachments to the diaphragm, that the lungs were delivered only after cutting and tearing lung tissue.

In three cases there was a total obliteration of the pleural space on that side.

In twelve cases the pleura was from one-eighth to three-eighths of an inch thick.

In one case that had been treated with artificial pneumothorax the uninvolved lower lobe was totally collapsed and a cavity at the apex was intact due to the obliteration of the pleura about the cavity and to five guy-rope type adhesions, two attached to the diaphragm and three to parietal wall.

From these autopsies we feel justified in concluding that cavitation and advanced tuberculosis are practically synonymous, and because of adhesions and pleura obliteration intrathoracic collapse, either from artificial pneumothorax or phrenocotomy sufficient to close the cavity would be possible in very few cases. That artificial pneumothorax would be totally impossible in fifty percent of cases. That, when pos-

sible, it would most often collapse the lower lobes which are usually uninvolved or only moderately so and leave the cavity intact, thereby doubly working to the patient's disadvantage.

Though we recognize the fact that artificial pneumothorax is effective in a small percent of cases and worthy of a trial, yet we minimize its importance as an effective means of meeting the mechanical problems in advanced pulmonary tuberculosis.

We further conclude that thoracoplasty is indicated in cases of unilateral tuberculosis in which the lower as well as the upper lobes are involved, such as cases with multiple or multilocular cavitation, cavitation with extensive lower lobe infiltration, and those with marked pleural changes.

These two measures, artificial pneumothorax on the early end of advanced tuberculosis and thoracoplasty on the late end of advanced tuberculosis, and indicated in unilateral disease, means that from the great number of advanced cases we can subtract possibly five percent to which we have something effective to offer.

The pertinent fact confronting us in the other ninety-five percent is a bilateral tuberculosis with one lung markedly worse than the other, containing an upper lobe cavity with lower lobes uninvolved or only moderately so. We must mechanically obliterate that cavity and, at the same time, conserve the lower lobe if we are to effectively benefit the patient.

Webb, et al, have compressed the lung by sacks of shot or twenty-three hours a day rest on the affected side. This makes a small appeal because of the rigidity of adult ribs but is quite effective in children.

Pneumolysis is one of the most favored of the conservative procedures. In extrapleural pneumolysis the rib is resected, Alexander preferring the posterior to anterior operation, the parietal pleura is stripped from the chest wall and a "fill" of fat, pectoral graft, paraffine lumps or gauze placed in the prepared field to produce obliterative pressure on the cavity. Intrapleural pneumolysis is a technic preferred by some operators in which the adhering pleura is separated by open dissection and the "fill" then introduced.

Jacobaeus introduces two cannulae into the chest; through one he is able to see the adhesion cords that he severs, by cautery, through the other. This makes artificial pneumothorax successful in cases held down by a few cord like adhesions.

Sauerbruch, Jessen, Stocklin, and others, advocate open drainage of cavities that

drain poorly and are producing absorption. Gekler has opened several cavities for the two-fold purpose of drainage and sterilization by chemical agents which excite granulation closing.

In a recent article, Schlaepfer shows experimentally the possibility of ligation of the pulmonary artery together with phrenocotomy producing complete arrest of function and fibrosis.

From these ingenious procedures we cannot but be impressed with the attack, from a surgical view point, upon the cavity and the effort to conserve functioning lung. The results already obtained and the proper recognition of the mechanical problem presented by advanced tuberculosis are sufficient to give us courage to study the problem more closely, and, in the choosing of our cases, to add cautiously a greater number to the list that surgery might have something to offer. Already such men as Sauerbruch, Bauer and Alexander are urging operative procedure earlier than has heretofore been attempted.

As a rule the internist is a poor mechanic, and this is a plea to him to appreciate more fully that advanced tuberculosis is a mechanical problem. Further we would urge the surgeon to make a more careful study of pulmonary tuberculosis which he has hitherto regarded strictly as the internist's field. His is the mechanical field and the internist needs his sympathetic cooperation.

We close with three brief case reports, each case showing a mechanical method of cavity obliteration.

Mrs. H. D. N., age 24. Two years ago her condition was advanced tuberculosis, left lung multiple cavitation, one large cavity, marked fibrosis. Right lung, fibrosis and calcification indicating extensive healed tuberculosis. At this time, after receiving prolonged treatment from artificial pneumothorax, she has total collapse of left lung including cavities.

M. G., female, age 13. Six months ago advanced pulmonary tuberculosis with large upper lobe cavity and marked fibrous changes. Small amount infiltration upper lobe of right. After three months of hygienic care there was marked improvement but cavity was still intact. A four-pound sack of shot was placed on chest over cavity which she has consistently worn since, with the result that the cavity is now replaced by marked fibrosis.

F. K., age 46. Advanced pulmonary tuberculosis sixteen years standing. Condition three months ago: Right lung remarkably clear of any tuberculosis. Left, greatly thickened pleura throughout with large multiple cavities, parenchyma apparently destroyed. Frequent hemorrhages. Was raising from 100 to 300 cc sputum daily. First stage thoracoplasty three months ago removing from tenth to fifth ribs inclusive. Second operation three weeks ago. Present condition: temperature normal, no bleeding since first operation. Sputum one to four cc daily. Gain in weight of fifteen pounds. Cavity apparently obliterated.

HELIO THERAPY IN TUBERCULOSIS

A Scheme for Proper Selection of Cases, with a Word About Technique*

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TUCSON, ARIZONA

**Read before the Tenth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924.*

Sunlight therapy, solar therapy, heliotherapy, are terms heard and seen with increasing frequency each year since 1913. Before that date they were practically nonexistent in the medical literature of the United States, although they had been fairly common in foreign medical literature for a period beginning about ten years prior to 1913. Rollier alone, during that ten year period, published more than a dozen articles. However, in spite of the favorable reports on heliotherapy by various foreign writers, practically no notice was given it in this country until after the publication of Rollier's profusely illustrated book, "Die Heliotherapie der Tuberculose," which appeared in 1913. Since that date, each year has seen more interest taken in it by American doctors until now one might almost say that it is the style in therapeutics. Heliotherapy is, unquestionably, a very valuable therapeutic agent in carefully selected cases, but it is being used too generally by doctors. Even patients, themselves, are using it without medical or any other kind of supervision. It is because of this unusual interest in it which is now being shown, that it is believed the time has arrived to re-emphasize that great caution must be used in employing it; otherwise, an important agent in the treatment of certain types of tuberculosis will, ultimately, be thrown in the discard by a good many doctors, particularly, so far as pulmonary tuberculosis is concerned. It is my firm conviction from my own experience and observation of patients, as well as from information obtained in discussion with doctors, that, at the present time, many patients with tuberculosis are being given sun treatment who ought never under any circumstances to receive it, and that others who ought to receive it with benefit are being made worse by it. It seems certain that this state of affairs will never be corrected until decidedly more attention is paid to (1) a proper selection of cases, and (2) a proper technic. Upon these two provisions depends the successful use of heliotherapy. Since a plan has been evolved which it is believed will solve the first requirement, and because it is desired to

make some suggestions concerning the second, this paper is written.

Sunlight in the treatment of disease is not a new thing. They say the father of history himself wrote of its use in the fifth century B. C., and, following him, other occasional writers of old have mentioned it up to and including the time of the Romans. After this period, however, nothing is heard of it again until the last two decades of the eighteenth century when it is recommended by several French writers for various conditions. About the middle of the nineteenth century, Bonnet of Lyons urged its use in bone and joint tuberculosis, and he was the first to emphasize the importance of the general sun bath in addition to its local use. In spite of Bonnet's recommendations, however, only casual interest was shown in solar therapy and that practically entirely by his immediate followers (notably Poncet and Ollier), until the last decade of the nineteenth century, when Finsen the Dane, with his scientific studies and the publication of his results, put its use on a solid foundation and aroused an international interest in it. Modern heliotherapy may really be said to have been born with the early work of Finsen, the results of which he first published in 1893. Following Finsen, current medical literature gives Bernhard of St. Moritz credit of first using sunlight in the treatment of infected wounds and so-called surgical tuberculosis in 1902, and then Rollier of Leysen, in 1903. Malgat of Nice is credited with being the first to use it in pulmonary tuberculosis, in 1904.

Without wishing to detract from the credit due any of these men, and credit is certainly due all of them, but desiring to see the sequence of events in the history of heliotherapy set forth as they actually occurred, I wish here to record the fact which, apparently, is not known to any of the writers, either native or foreign, who have written on heliotherapy, that the real pioneer, after Finsen, in heliotherapy, for surgical, as well as pulmonary tuberculosis, was an American doctor, living and practicing in Fort Dodge, Iowa, Dr. J. W. Kime, by name. Stimulated by Finsen's work on lupus, Dr. Kime was himself treating that

disease with sun in 1897 or 1898. He obtained excellent results, and reasoning that if sunlight was of value in skin tuberculosis, it ought to be valuable in other kinds, he began, in 1900, treating tuberculosis of the lymph glands and lungs. His interest was so intense that he did some research work on the penetration of light rays, and this part of his work has been acknowledged in literature. He also invented a large mirror made of blue glass, which cut out a large part of the heat rays and concentrated the blues and violets. His work so closely following Finsen, who assumed that all the valuable part of the spectrum was at the violet end (we think differently now), it was most reasonable that he should work along this line. Dr. Kime used his mirror to concentrate the rays on the part affected and, in addition, exposed the patient's body to the direct rays of the sun. He was enthusiastic about this work, and talked of it constantly.

In spite of knowing about Dr. Kime's work and hearing him talk about it on more than one occasion, the writer did not take any interest in heliotherapy, until after Rolliers first book appeared in 1913. What he had to say was so convincing, coming as it did on top of what was already known of Dr. Kime's work, that at last, a keen interest was awakened. A little later, hearing a doctor acquaintance who had visited Rollier's clinic, wax so enthusiastic about the results, this interest was so increased that the following year or so its use was begun on an occasional case. At first only on cases of uncomplicated, so-called surgical, tuberculosis, later on so-called surgical with pulmonary involvement, and still later, after getting good results in both these types of cases, it was tried out in pure pulmonary. At first in the pure pulmonary, having no guide except the warning of Rollier to proceed carefully when approaching the chest and avoid toxic cases with high fever, great caution was exercised, using it on but few cases. These cases were chosen for the sole reason that they were not improving. No effort was made to select them according to any rule, for none was known, but luck must have been with both doctor and patient, for enough good results were obtained in these uncomplicated lung cases to encourage its further use; so that, before long it was being used on an increasing number of patients, too many in fact, for one day it was realized that some cases under its use were getting worse. The determination accordingly followed to stop and see what was the matter. The first thought was about

the technic, but after reviewing this carefully the conclusion was reached that technic was not the trouble. Rollier's insistence that one must develop a separate technic for each patient, according to the way he reacted to sun, had, from the beginning, made such an impression that it seemed sure the technic was all right, and then too the so-called surgical cases were all getting along well, even those with pulmonary involvement. As warned by Rollier, however, one had to be more careful in the latter cases because of the chest involvement. Was Rollier wrong in thinking that heliotherapy might be valuable in lung tuberculosis? These results pointed to that conclusion. He admitted that he had had no experience in pure pulmonary tuberculosis, and his conclusion that because it was valuable in surgical, it should be in pulmonary, was not founded on experience. While some pure pulmonary cases improved, some became worse, but all of the surgical cases with accompanying lung involvement improved. Now, how were these seemingly contradictory facts to be explained? It was not yet quite apparent, but there must be an explanation. To recapitulate briefly, here were the facts: (1) Practically all uncomplicated surgical cases of tuberculosis under heliotherapy got better. (2) All surgical cases with lung lesions got better, and **some** pure lung cases got better, but **some** pure lung cases got worse. Going back to Rollier for help, none was forthcoming. His experience at that time in pure pulmonary tuberculosis, as already stated, had been nil. All he had to offer was his expressed opinion that sun ought to be valuable, if a proper individual technic were employed. Finally, remembering that there were different types of lung tuberculosis, it gradually became apparent that here was, in all probability, the solution of the problem. That is to say, it was likely a matter of general type of lung tuberculosis that determined whether the patient improved, or did not improve under sun treatment, provided always, that the technic was correct.

The two broad divisions into which most cases of pulmonary tuberculosis can be divided are (1) exudative and (2) productive type. In order to refresh your memories concerning the points of differentiation of these two broad types, exudative and productive, it may be recalled that in the former (exudative), there is usually a history of more acute and severe onset, there are more toxic symptoms, higher and more continued fever, more rapid pulse, more loss of weight, more cough and ex-

pectoration, often night sweats, as contrasted with the productive type in which the onset is less acute, slower and more gradual, the patient has few toxic symptoms, frequently feels good, has less fever and slower pulse, usually not much loss of weight, or if there is, it has occurred slowly, less cough and expectoration, no night sweats; in fact the whole picture is less severe and more chronic throughout.

Physical examination in the exudative type shows, very often, only a comparatively small area of involvement in spite of pronounced general symptoms, and there is a tendency to more rapid extension and breaking down. Examination in the productive type usually shows a comparatively larger area of involvement, with few general symptoms, less tendency to extension and breaking down, often a large part or whole of one or both lungs is involved with many moist rales, but little cough or expectoration and only slight or no general symptoms. In other words, in the exudative type there is often disproportion between the signs elicited by examination and the general symptoms, the latter being more severe than the physical signs would indicate. In the productive type, there is the same disproportion but it is turned around; there are more physical signs than the general symptoms would suggest. The exudative type pursues a more florid and more rapid and acute course throughout. The productive type pursues a less angry, more indolent, and chronic course throughout.

The x-ray shows, in the exudative type, mottling, either fine or coarse, without much peri-bronchial increase and with a tendency for this mottling to coalesce with later cavity formation. The productive type appears as peri-bronchial strands or trunk formation, usually diffuse, often with beads along them, and less tendency to cavitation.

Keeping in mind, then, the two broad divisions into which most cases of pulmonary tuberculosis could be divided, a careful review of the cases of surgical tuberculosis with lung lesions showed that, almost universally, they could be classed under the broad type of productive. Looking over the pure pulmonary cases who improved under sun showed that they too could be classed under this type (productive). Looking over the pure pulmonary who became worse it was almost always the other type (exudative). Here then, was the explanation for the whole difficulty, and the question which before had seemed

so obscure, resolved itself into a very simple one; viz., classification of cases. The following scheme of dividing all cases of tuberculosis into four broad classes was then evolved solely for use when considering heliotherapy. It is simple, entirely practical, and experience has proved that it solves the problem of how to properly select cases for heliotherapy.

Class 1. Pure extra-pulmonary tuberculosis without a pulmonary lesion.

Class 2. Extra-pulmonary tuberculosis with a coincident pulmonary lesion.

Class 3. Pure pulmonary tuberculosis of the productive type; also hilus gland type.

Class 4. Pure pulmonary tuberculosis of the exudative type; also all acute forms.

NOTES

In Class 4 (exudative) never use heliotherapy. It never does good, but often great harm.

In Class 3 (productive) use it only in those cases who, in spite of the best hygienic-dietetic treatment, remain in a stationary condition or are slowly losing ground. Do not use it in the others of this class, for they will get well without it. Use it in all hilus-gland types.

In Class 2 (surgical with lung lesion) use it in all cases, but be very careful to avoid reactions and especially careful about exposing the chest.

In Class 1 (pure surgical) use it in all cases. The thorax may soon be exposed like the rest of the body.

Of course it is to Rollier that most credit must be given for the present day wide-spread use of heliotherapy. True, other men helped to blaze the way, but it was he who made a road of a mere path and brilliantly illuminated it. He is to be especially commended **first** for emphasizing the importance of the sun and air bath to the whole body as opposed to its local use; **second**, for re-emphasizing that so-called surgical tuberculosis is not a local disease, but a general disease with local manifestations; and **third**, for urging constantly that if heliotherapy is to be successful, it must be given with the most carefully developed individual technic.

And now a word about the very important subject of **technic**: To try to cover this subject in detail is not possible in a paper of this length. All that it is hoped to do is to call attention to some important points which, in the writer's opinion, seem to need clarification or emphasis.

There is, unfortunately, a great deal of misunderstanding about this subject of

technic in heliotherapy. Most physicians today know of Rollier's work and results with heliotherapy; in fact, mention heliotherapy to the average physician and he immediately thinks of Rollier and no one else. Most physicians too, have heard of his technic or method, and here it seems is where the confusion arises. A great many confuse his technic with his zoning scheme; they seem to think that this zoning scheme which begins with exposing the feet to the sun for five minutes one or more times daily the first day, ten minutes to the feet and five minutes up to the knees the second day; fifteen minutes to the feet, ten minutes up to the knees, and five minutes up to the hips the third day, and so on, comprises a technic. And they seem to think that when they have mastered this, they have mastered heliotherapy. This zoning scheme is often spoken of as though it were a definite settled thing, as if it had been promulgated as a precise procedure that could always be used in a certain way and the same on all patients, as one would for instance use the Ziehl-Neelson method for staining tubercle bacilli, but this is not true. Rollier never intended this zoning scheme of his to be considered a technic for giving sun. He well knew from his own experience that if sun were to be given to patients successfully, it must be given in a very gradual manner, and that by beginning with the extremities rather than the trunk of the body, or seat of disease, a decongestive effect was produced, and one was much less likely to get unexpected reactions and it was easier to feel one's way. The average patient too, in his experience, could stand five minutes beginning exposure and increase without bad effects. So he published this scheme to be used tentatively, but intending that it must be fitted to each individual according to his particular reaction to the sun. If there is any one thing which he has emphasized more than another, it is the necessity of finding out the dose of sun which each patient can stand. Another thing is the need of great caution when approaching the chest; and still we see many patients exposing their chests just like the rest of their body, and in the presence of even very active pulmonary tuberculosis. The same may be said of the abdomen in tuberculosis of the peritoneum. No good, of course, can come of this and harm frequently is done. It is unfortunate, but true, that there is no short cut to technic, no hard and fast rule which one may follow, but, as indicated before, it is made up of many factors, it must be developed or built up as one goes

along, because it depends upon individual differences which cannot be known in advance. It must be made, therefore, as you give your patient sun and according to the way he reacts. One must never consider the zoning scheme in any other manner than a way to start a person off, which will have to be altered in many cases. One patient will never stand five minutes initial exposure, another may stand this amount of initial exposure, but will not stand that much increase day after day, others may easily take more, and how much to give safely may only be known by watching carefully your patient's response.

It was just said that there was no hard and fast rule as to technic but it may be emphasized here that heliotherapy administered correctly never produces any disagreeable sensations; a patient taking it may not feel better while he is having it, or immediately after, but he must not feel worse nor must he have any symptoms he did not have when he began it (except it be a feeling of well being or exhilaration). If he does have other sensations one is probably over exposing. There are many factors which must be considered in applying heliotherapy successfully to the individual patient which time will only permit to be mentioned. First and foremost are **meteorological conditions**, whether it is being given at the seashore or on the desert, on the plains or in the mountains; **the humidity of the atmosphere**, whether moist and foggy, or dry and arid, whether contaminated with smoke and dirt or not; whether the sky is cloudy or clear, whether it is windy or still; **the temperature of the air**; whether hot or cold, the time of day, the season of the year. Next comes **the condition of the patient**; the sicker he is, the less heliotherapy will he stand; is his disease complicated or uncomplicated; the type of patient, brunette or blonde, and if the latter, whether ordinary or titian haired blonde. All of these things will make a difference in how the patient takes heliotherapy. In addition to the above there are certain general rules which must be applied to all patients alike. These rules are simple and ought to be well known, but they are neglected so often that they will bear repetition.

1. Always protect the head, either by a big broad brimmed hat or by having it in the shade.

2. Always wear dark glasses to protect the eyes.

3. Always cover up the site of disease until such time as lack of reaction and be-

ginning pigmentation shows that everything is going all right.

4. Always begin with the feet and progress slowly toward the trunk.

5. Always see that provision is made to protect the body from any cold wind. The patient must always feel comfortably warm.

6. In all cases with pulmonary involvement keep the chest covered up until sure that the patient is improving; then, and then only, one may begin to expose the chest, at first for not more than one minute a day, with a like amount of daily increase if all goes well.

7. In cases of peritoneal involvement, keep both the abdomen and chest covered until definite improvement is started; then expose first the abdomen very carefully, beginning with one minute a day and increasing each day by not more than that; later the chest may be added in the same manner.

In cases of involvement of the external lymph glands, much time will be saved by starting the patient on x-ray treatments and then continuing with heliotherapy.

Heliotherapy is really a misnomer; the term should be helio-aerotherapy (sun-air treatment), and the writer is inclined to believe that the air bath is of decidedly more importance than the sun part. Nobody has ever proved that the good effects we get from heliotherapy (meaning the general sun and air bath) could not be gotten from the air bath alone without the direct rays of the sun. It may be wholly the air bath which is responsible for the good effects, and we know certainly that when bad effects are gotten with this treatment they are due directly or indirectly to the sun. Patients do not get any bad effects from the air bath alone without the sun, or at least it has never been seen in my experience. For some time now I have urged many of my patients with pulmonary tuberculosis who are not taking heliotherapy (as well as those who are), to take air baths as many hours out of the twenty-four as possible. No harm has ever been seen to come from it, unless a patient was careless enough to let his body get cold. Unfortunately with our ingrained ideas of modesty and dress, it is hard to get them to do it, but each year a greater number are taking it, and it is hoped some day to have them all at it. I must not be concluded yet that it is as beneficial as the combination with sun; more time is needed to try it out, but I am convinced that it is very beneficial in many cases and with the exception noted above (cold), it never

does harm and has the advantage that it can be used in all pulmonary cases without regard to type.

SUMMARY

1. Heliotherapy is not by any means universally indicated in all cases of tuberculosis. There are many patients in whom it ought not to be used at all.

2. Heliotherapy is not a cure for any type of tuberculosis, but is, in many cases, a very necessary and valuable adjunct therapeutic measure, especially in the so-called surgical tuberculosis.

3. Heliotherapy, for the very reason that it is not a cure, must never be used to the exclusion of our other valuable measures, as rest, etc.

4. Heliotherapy, it must be constantly remembered, can do great harm carelessly administered; for sunlight is a very powerful agent.

5. Heliotherapy, in the same dosage, affects different patients differently, more than almost any remedy with which I am familiar, especially in the beginning of its use.

6. Heliotherapy must, therefore, in every case be used not according to any set rule, but according to the reaction of each individual to it.

7. Heliotherapy is of the greatest value, and may be applied with the least chance of doing harm, in pure extra-pulmonary tuberculosis, i. e.; the so-called surgical tuberculosis without a pulmonary lesion.

8. Heliotherapy is of great value in extra-pulmonary tuberculosis carrying a co-incident pulmonary lesion, but in giving it one must be very much more careful than in the uncomplicated form, especially about exposing the thorax.

9. Heliotherapy is of great value in the hilus gland type of tuberculosis and should be used in all such cases. Heliotherapy is of some value in some cases of the productive type of pure pulmonary tuberculosis, but it must be used with the greatest caution; otherwise it may transform a favorable, stationary or healing lesion into a rapidly progressing, fatal one.

10. Heliotherapy is practically never of value, and is often positively harmful, in the exudative type of pure pulmonary tuberculosis as well as all acute forms, and ought, therefore, never be used in these types.

11. Heliotherapy used in any type of tuberculosis must always allow the patient to feel the same, or better both during and after his sun bath; if it does not, something is wrong. Beware!

12. Aero-therapy (meaning the general air bath without any direct rays of the sun), time may prove to have most or all

of the advantages of heliotherapy in pulmonary tuberculosis with none of its disadvantages.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS

BY
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Eleven years ago one of us coined the following paraphrase: "In the treatment of tuberculosis there now abideth fresh air, good food, rest, these three; but the greatest of these is rest." Rest was defined as meaning rest in bed and was pronounced essential to all cases of active pulmonary tuberculosis.

Recognized leaders in the medical profession at that time openly scoffed at the belief that bed-rest was necessary in the treatment of phthisis. This idea was very slow in taking root in the minds of the profession, and it was not until the careful painstaking work of Bushnell was forced into the lime-light by the great war that the rank and file of the profession began to grasp its real significance. Today, practically all are agreed on the supreme importance of bed-rest, and quite recently one of the most widely recognized authorities on this continent referred to rest as a specific in the treatment of pulmonary tuberculosis.

The real advances in the treatment of pulmonary tuberculosis in the past decade have been in emphasizing and clinching the idea, and in perfecting the details, of general and localized rest. Typhoid or bed-pan rest now occupies a foremost place in the treatment of acute and stubbornly chronic cases. A number of appliances, devices and operations are now being used for the purpose of limiting the motion of the affected side and giving complete or partial rest to the diseased lung; of these, artificial pneumothorax is the most widely used, and, in a strictly limited field, gives the most striking results. These advances in technic have served to confirm the idea that rest in bed is essential in all cases of active pulmonary tuberculosis, and that artificial pneumothorax and all other measures for giving localized rest to the diseased lung are only aids or extensions to be used in conjunction with or following rest in bed of the whole body.

AIM AND EFFECTS

The aim of artificial pneumothorax is to

introduce into the pleural cavity filtered air or gas, which will collapse the affected or more affected lung, which is thus put at rest and given an opportunity to heal. As rest is the greatest factor in the treatment of any form of tuberculosis, it can be easily appreciated just what pneumothorax does, if we will but stop and realize that the lung expands and contracts about 25,000 times a day. Moreover, the lungs are in a constant state of distention even after the most forcible expiration, and any solution of the continuity of this tissue remains separated. However, with the lung collapsed and immobilized, the diseased parts and walls of cavities are brought into apposition so that they may cicatrize by the formation of connective tissue. But pneumothorax does even more than this. By compression, the pus and cheesy detritus in cavities and the inflammatory exudates in the alveoli and bronchioles are squeezed out, removing the main source of toxic absorption. As a result of this drainage, mixed infection is eliminated and prevented. Superinfection of other parts of the organs is, in a measure, prevented. There is also induced a passive hyperemia in the collapsed lung, which is known as an important factor in the defense of the tissues against the tubercle bacilli. The lymph channels of the lung are also collapsed, and as a result, the absorption of toxins into the general circulation is impeded or arrested; and the fever, night sweats, weakness, etc., are overcome, and the body given a chance to recuperate.

CHOICE OF CASES

Pneumothorax is indicated in:—

1. Acute caseous unilateral lesions.
2. Progressive fibrinous unilateral lesions.
3. Active or progressive lesions in one lung, with an old or inactive lesion in the upper lobe of the good lung.
4. Advanced cases with bilateral disease, in which one lung is extensively in-

volved with perhaps cavitation, while the other side shows only limited involvement.

5. Hemorrhage: (a) Massive hemorrhage, where it is known from which lung it arises. (b) Cases with small or moderate hemorrhages recurring in spite of all less radical measures.

In the first class, we think that artificial pneumothorax should be induced without much delay, as it is our experience that this particular type rarely responds to the usual method of treatment.

In the second and third classes, bed-rest, and, when necessary, postural rest, should be given a fair trial for a reasonable length of time before artificial pneumothorax is considered. On the other hand it must not be forgotten that the longer the disease continues the more likely are pleural adhesions to form, and the less likelihood is there of being able to get a satisfactory compression of the lung. For this reason, constant careful study of each case should be made. In addition to a careful study of the history and progress of the case, we should not arrive at any definite conclusion until we have exhausted every available means of examination, such as repeated physical examinations, including fluoroscopic and radiographic methods.

In the fourth class, it is better to have nothing more than an infiltration on the good side and that not extending much below the apex. In these cases it is to be remembered that one generally obtains only prolonged relief of symptoms, rarely cures. With superficial cavities where there is great danger of rupture of the lung under compression, or in the presence of adhesions, there will be a failure to bring about a satisfactory collapse.

In massive hemorrhage, the only question to be determined is which lung is bleeding. The opinion of the patient is often very valuable in these cases. In repeated small or moderate hemorrhages one must decide if the bleeding can be properly controlled by other and simpler means, and whether the other lung can probably do the additional work.

CONTRAINDICATIONS

1. A fairly extensive active process in the good lung, especially if the middle or lower part of the lung is involved.

2. Presence of definite disease of the heart, blood-vessels, or kidneys.

3. Presence of serious tuberculous complications; (a) extensive ulcerative enteritis, (b) active ulcerative laryngitis, if too extensive, (c) extensive disease of the genito-urinary tract.

4. Mechanical interference, such as marked adhesions.

5. Fibroid cases with extensive emphysema.

6. Ignorant or irresponsible individuals who cannot be depended upon to follow the treatment through.

Of course every one understands that there are numerous cases of pulmonary tuberculosis which do well without any special treatment, and it is therefore very inadvisable to subject them to this operation with its potential complications. This is especially true of incipient and abortive cases.

TECHNIC

The operation should be performed with all the attention to technic and asepsis that the operator would accord to a major surgical operation. The object is to introduce filtered air or gas into the pleural cavity. After carefully anesthetizing the area with one per cent procaine, a simple puncture of the chest wall is made with a hollow needle connected with a gas reservoir and a water manometer through a tube. When the lumen of the needle punctures the costal pleura and there is a respiratory oscillation in the manometer, the gas is allowed to flow into the pleural cavity by the negative pressure in that cavity, as well as by some positive pressure, which must at times be used at the gas reservoir. There are certain difficulties to overcome and dangers to be avoided, but the time is not sufficient to permit going into all the technic at this time. While the ideal site for puncture is either in the anterior or posterior axillary line, because of pleuritic adhesions, we are many times compelled to select other places. At times it is difficult to determine just where the site should be. However, if an area of normal lung tissue can be found as shown by percussion or auscultation, this is the site we should try. Another aid is to puncture over an area where there is a to and fro friction rub which should indicate a free pleura.

The gas used varies with the operator and while nitrogen was formerly thought to be the most suitable, later experience has taught us that filtered air is just as good. The amount of air to be introduced should be small, at first from 100 to 300 cc. Later larger amounts may be used, but it is rarely necessary to use more than 400 cc. However, this varies with the individual case. At first it is introduced every other day, gradually increasing the interval from ten days to two weeks or more. Frequent study by fluoroscope and occasionally by stereoscopic x-ray films should be made to

control frequency of refills, it being the intention to keep the lung or diseased portion of the lung as nearly motionless as possible.

COMPLICATIONS

The complications are: 1. Pleural shock. 2. Gas embolism. 3. Pain. 4. Spontaneous pneumothorax. 5. Emphysema. 6. Pleural effusion. 7. Pyothorax. 8. Extension of disease to other lung. Of these the most frequent is pleural effusion, which is sometimes followed by pyothorax. These are the only two complications which we will discuss.

Pleural Effusion. It is generally agreed that at least fifty percent of all cases develop fluid, but a review of the literature indicates that men with the most experience report the highest incidence of fluid, some as high as ninety percent. The chances of effusion increase with the length of treatment, and with the extent and intensity of the involvement. The most logical explanation of the cause of fluid is that of an endogenous reinfestation of, or migration of bacilli to, the pleura. Other reasons advanced are (1) cold; (2) physical over-exertion; (3) irritant quality of gas used or its being too cold; (4) puncture of lung by needle; (5) tearing of adhesions; (6) varying degree of intrapleural pressure.

Practically all are agreed that small serous effusions do best if left to Nature. In larger effusions, especially if they show any tendency to become thick or purulent, even if they remain sterile, some advocate aspiration and replacement with air. Others advocate, in addition to aspiration and air replacement, that the pleural cavity be treated with various antiseptic solutions, such as aniline dyes, formaldehyde in glycerine, etc. We have had no personal experience with formaldehyde in glycerine, but we are inclined to be prejudiced against it on account of the irritant quality of this drug and the marked reactions which immediately follow its use. Our limited experience with aniline dyes did not meet with enough success to warrant us in continuing its use.

The question of the treatment of fluid, therefore, is one that is not definitely settled. It has been our experience, however, that a sterile fluid, while inconvenient, does not interfere with the progress of the case to any extent. Therefore, it has been our custom to leave sterile fluids alone unless they cause respiratory embarrassment, and then we aspirate.

Pyothorax:—Pyothorax practically always follows spontaneous pneumothorax

and when sterile effusions in artificial pneumothorax become infected the mortality is very high. The treatment is very unsatisfactory but we may try one of the aniline dyes. Operative procedure, such as open drainage or thoracoplasty, may be used as a last resort, but the results of this form of treatment are far from encouraging.

LENGTH OF TREATMENT

It is becoming more and more apparent to us that in cases with extensive involvement, with cavitation, the compression should be continued through life. After the condition of a patient has sufficiently improved, he should be given the choice of continuing pneumothorax indefinitely or of having a thoracoplasty performed. We believe that as the technic of thoracoplasty is improved and the death rate continues to diminish, more and more of these cases will decide to have this operation performed. In cases with small or moderate involvement on one side, we should attempt to discontinue pneumothorax in from one to two years after the patient is free from symptoms.

RESULTS

In a general way statistics indicate that complete success can be obtained in 25% of compressed cases, while a definite improvement is gotten in another 25% or 30%. In 45% or 50% of cases no permanent improvement results.

The final results are often determined by the effects of the compression on the opposite lung. If a satisfactory compression is obtained and the other lung can do the extra work and still improve, the results which follow are usually excellent. If the condition of the opposite lung remains stationary under its additional load, the results are often satisfactory. If the disease in the other lung extends, the compressions should be discontinued and the outlook for the case is bad.

CONCLUSIONS

1. Artificial pneumothorax is not a cure for pulmonary tuberculosis. It is, however, a very important advance in the treatment of certain selected cases but only when used in conjunction with the recognized routine measures.

2. The indications and contra-indications for using artificial pneumothorax in pulmonary tuberculosis have been quite definitely established.

3. The dosage, frequency of refills and degree of compression vary with the individual case. The general principle to be followed, however, and one of the greatest importance, is that after determining the

degree of compression which is most desirable, the lung should be kept motionless at that point. This can be done by proper spacing and dosage of refills.

4. Serious complications are so rare that fear of them should never deter one from attempting the procedure when indicated.

5. The indications for discontinuance vary with the type of case. In some the compression should be maintained for life unless a thoracoplasty is substituted. On others it may be discontinued in from one to three years.

6. It increases by approximately 50% the chances of controlling the disease in certain chronic cases which otherwise almost invariably do badly.

DISCUSSION

(Discussion of the three papers in this symposium was opened by Dr. Fred G. Holmes, of Phoenix, Arizona.)

DR. HOLMES:—I am only going to take a very few minutes in discussing these papers.

First, with regard to Dr. Watson's paper. I think it is about the finest paper I have ever heard read on heliotherapy, the most convincing, and, so far as I am concerned, the most educational. His review of the classification of tuberculosis in the pulmonary type of the disease is fine, and it brings home to me as never before the reasons why we have not gotten as good results as we should. If we follow his classification as given, I believe we will get better results in our heliotherapy. I wish to emphasize the fact that it is probably the air which is doing the work. For a long time now I have been having my patients take air baths on the porches, and they get almost as good a coat of tan as if exposed to the direct rays of the sunlight, and apparently no ill results.

In the first paper by Dr. Egbert, he stated a point on which I disagree, that is, that the lung would not come back if it had been collapsed for some time. Dogs have been kept under collapse for years, and their lungs have returned to normal with very little difficulty. With all pulmonary tuberculosis we have found that unless there is a thickened pleura it will return, and will function very well. That is, of course, the good part of the lung; the other we are very willing to let go.

Obliteration of the pleura can not be told except by trying. It can not be told by the x-ray; I have been trying for two years to do that, and have failed, because from an x-ray standpoint it may seem to be entirely obliterated and still be perfectly free.

I heartily agree with Dr. Egbert in the stand he takes in regard to pneumothorax. I think we can get a higher percentage than the fifty percent he gives, if conditions are right.

With regard to Dr. Flynn's paper on ordinary pneumothorax, I feel that the collapse will shorten the patient's time in bed. I do not think there is any necessity of keeping them in bed longer than two months, unless, of course, they are very sick. If you put a splint on a fractured arm, you would not keep the patient in bed because of it for any length of time. If the other lung is normal he can be allowed up and about in a very short time; they are no longer, at least, considered as

wholly bed patients. Their symptoms should govern the extent to which they are allowed up.

Regarding fluids, I do not know what the causes are. I think a sterile fluid is a benefit. If I knew in advance of a collapse that a patient was going to have fluid, I would go ahead with it just the same. However, in such a case we must be more careful to see that we do not get an adhesion of the lung underneath the fluid. We must see that it is not coming out under the fluid. I think it was that which killed Dr. Trudeau; if it hadn't been for that he would not have died as soon as he did.

With regard to Dr. Allen's remarks on partial collapse, I feel that they are hardly justified for a man in private practice. I have had good success with a total collapse, when I have been able to get them. For a patient in private practice to return to the office for collapse so often entails an unjustified expense.

DR. W. W. WATKINS, Phoenix, Arizona:—These papers we have heard read illustrate something a man from El Paso mentioned over at the New Mexico meeting, as published recently in our Journal; that is, that a tuberculosis specialist is nothing but a specialist in internal medicine; he is an internist who devotes most of his time to chest diseases, and the tuberculosis specialist, pure and simple, is an anomaly.

As to pneumothorax, I have always taken a great interest in pneumothorax; I believe that I gave the first pneumothorax administration in the state of Arizona, in 1912—twelve years ago. One of my first cases is still working in Phoenix and recently took out \$20,000 in life insurance. Two of the other cases I had in that year are well and doing full time work.

Regarding Dr. Watson's paper on heliotherapy. I think the points he makes are well worth study, and it behooves us to remember, when we are dealing with sunlight, that we are dealing with a very potent remedy. You can not tell your patient to go out and take a sun bath any more than you can tell him to go out and take a dose of strychnine; it should be prescribed as carefully as anything else. I would say it is more potent than x-radiation even, considering the amount you take. You know you would not expose your patient to x-radiation with impunity. We can do an immense amount of harm as well as an immense amount of good with heliotherapy, and it must be constantly supervised down to the finest detail, with a careful study of the patient. However, that is not the common practice, for I do know that doctors usually tell their patients to "go out and take sun baths."

As far as the technic of Rollier is concerned, that is not applicable in all cases. I would add,—from the little experience I have had in doing tuberculosis work,—that while heliotherapy is a valuable thing, it must be carefully used and can not be given on a general plan or scheme of technic.

DR. E. W. PHILLIPS (Phoenix, Arizona):—I want to say that I think Dr. Watson's paper is admirably written and is not too emphatic. Sunlight can do as much harm as strychnine, but it could do a great deal of good in tuberculosis if the patient will follow along the lines Dr. Watson has laid down.

One thing about air baths,—an air bath is almost always an indirect sun bath, in reality; it would be difficult to separate the two things unless we give the air bath in a dark place, which is really never done; so an air bath is an indirect sun bath.

DR. WILLARD SMITH (Phoenix, Arizona):—There are two points I would like to speak of.

First on this subject of expansion; I have watched this for a number of years, beginning about ten years ago, and have had a number of cases where they have had complete alveolar expansion.

Second about fluid;—fluid particularly occurs in cases of adhesive bands. We all know that it is possible to tear a lung with gas, and great care must be taken in compression. If you get an abscess in the pleura, you are not dealing with pneumothorax and a fluid, but an empyema. That brings in another bunch of things that it would be well for the tyro to remember.

DR. J. I. BUTLER, Tucson, Arizona:—I hear constantly the mention of Rollier, and his methods and treatment. I have yet to hear a word spoken of Lagrasso, of New York. And yet he has five hundred men under heliotherapy, and is doing a most remarkable work.

Lagrasso is a most cordial man to meet, and welcomes everyone who goes there, just as Rollier, and he can show you things that really open your eyes. After my visit there in New York I went to Chicago and spent a little time with Dr. Becker, who knew nothing about Lagrasso at all.

If you notify Lagrasso that you are coming he will have you met at the train, and will be glad to show you all over his sanitarium. These cases of his, the methods he uses, the checks he regards as necessary, the investigation that is taking place with regard to heliotherapy,—all are signs of the work that is going on in this country. And it is an entertainment to see his patients,—a whole army of little shavers in breech clouts and wide hats, and on roller skates, if you please. It is a sight well worth seeing. The Buffalo Hospital and the laboratory work are alone worth a visit. And all of these cases they have given work on by sun rays. They have been investigating the development of ordinary sun rays, measuring, meteorological observations, etc. It is a revelation in scientific work.

DR. J. W. LAWS, El Paso, Texas:—I agree with some of the others here who have discussed the return of the function of the lung after compression that has been allowed to come back. From my observations, the true proportions of the lung are again resumed, that is the good portions of the lung.

One point I want to express regarding thoracoplasty, I have had only a limited number of cases but I feel that we are neglecting many of our cases with whom we have tried pneumothorax, and have failed to let the condition progress satisfactorily where thoracoplasty should have been advised and the patient operated on.

Dr. Watson's paper is fine on the subject of heliotherapy, and I feel, as he does, that the air bath is one of the big things, one of the big elements in the treatment of the patient, where heliotherapy is properly given.

Dr. Flynn's article covers his subject so thoroughly that there is little to add. The continuation of pneumothorax for life is a little startling, and I am inclined to think that this would be limited to only a few cases. Pneumothorax is used in many cases as a means to prolong the patient's life only, without expectation of recovery, and in my opinion is often times indicated where the better lung is active. I have seen progressive cases with the trouble practically all over one lung where pneumothorax was used, not with the idea of curing them, but with the idea of prolonging life and making them more comfortable during the time they had left to live.

DR. O. EBERT, (El Paso, Texas,) closing:—I want to join in the reception that has been given Dr. Watson's paper. May I just say that, outside of practically every point being pertinent, I believe the air bath for building up the resist-

ance of the individual by exposure to air and sun, or both, is of the greatest service. Personally I have been most particularly interested in developing resistance to the on-coming winter by advising this treatment, because I feel that if it does not build up resistance and limit the possibility of acute respiratory difficulty,—which is our greatest enemy from any standpoint in tuberculosis,—it would be a very strange thing.

I also was much interested in the particular statements in that paper regarding the return of the alveolar function of the lung. In the face of such splendid criticisms I feel that my position is rather doubtful, because there are a great many men here older than I and who have had more experience, and I can not meet their arguments with individual experience. My ideas are those gathered from literature and study of the pathology of the lung, in which the alveolus is proved to have lost its elasticity to a great extent; I believe in my paper I did not say positively, but that it was doubtful if the alveoli would return to its normal size; that in most cases it did return, of course, but only to a very limited degree. But certainly the pathologists who have worked on this make a very strong point in saying that in many instances the reticulum about the alveoli is so fibrous that the elasticity is largely lost.

DR. S. H. WATSON, Tucson, Arizona (closing):—I do not want to say anything about my own paper except to thank the gentlemen for their very generous discussion of it. And I want to compliment Drs. Egbert, Flynn, Allen and McWhirt. I listened with a great deal of interest to the papers of Dr. Flynn and Dr. Allen, and enjoyed particularly the demonstration of that one case in which they had produced ordinary pneumothorax, and I thought as I was sitting there that it was most fitting that Dr. Flynn should be the man to link up this local rest produced by the pneumothorax with the general bed rest required in tuberculosis, for whether you may know it or not, Dr. Flynn was a pioneer in seeing the importance of bed rest for all patients with that disease; he was a pioneer, too, in employing and applying it. At the time he became convinced of the importance of bed rest in tuberculosis, the so-called authorities were using rest in only a haphazard sort of way, and they did not consider it very important unless the patient had fever.

I shall never forget the paper that Dr. Flynn read at the Minneapolis meeting of the American Medical Association about his ideas on rest. That it was revolutionary in its recommendations may be gathered by the fact that every man before whom he discussed it was a recognized authority and they jumped all over him. He talked right from the shoulder and they didn't like what he said. That he was entirely right, time has proved.

I have always felt that I have had many patients with tuberculosis who did not get well, and who would have gotten well if they had added to the local rest they were getting, from pneumothorax, more general rest for a longer period after the pneumothorax was instituted. It is the old story of surgical tuberculosis; it is not cured by local rest alone; general rest and other general measures are indicated to build up bodily resistance and immunity,—and it is the same with pneumothorax in the lung,—it is local, and local treatment is not enough, if we are going to get the greater number of our patients well, because tuberculosis is not a local disease; it is a general disease with local manifestations, and for that you need general measures, the most important of which is general rest.

DR. JAMES H. ALLEN, Whipple Barracks, Arizona, (closing):—Before closing this discussion

I would like to express my appreciation of the paper that Dr. Egbert just read. I think it is particularly appropriate that he brought this paper to our attention at this time, because it is only lately that thoracoplasty has had such an important place in the treatment of tuberculosis.

I was also much impressed with Dr. Watson's paper, because about two years ago I had an opportunity at Fitzsimmons General Hospital in Denver to see some work that Major Bruns was doing with heliotherapy, and I began to understand its value in tuberculosis.

I also appreciate the comments on pneumothorax, and I am inclined to agree somewhat with Dr. Holmes about complete collapse in certain cases. When I drew the conclusion that a partial collapse was better than a complete collapse, I did not take into consideration the fact that physicians in private life do not, as a rule, have the facilities to check up their compressions under fluoroscope and x-ray examinations, and I believe that in cases where you can not check them up carefully, it would probably be advisable to induce a complete collapse and keep it at that point all the time. However, I still believe that where we have the facilities a partial collapse is best. It does not result in so much mediastinal involve-

ment, and when we get ready to let the lung expand it is not so likely to cause a recurrence of the disease.

So far as letting the patient up is concerned, I believe if we follow the indications as we do in ordinary tuberculosis, for pneumothorax, we will be on the safe side. In other words, when the temperature subsides, and the patient has gained in weight, it is all right to let him up.

About this point of continuing the pneumothorax indefinitely:—I realize that there are only a few cases where it should be continued indefinitely, but there are a certain few cases in which there is multiple cavitation, or very large cavities that are almost moribund when we start this procedure, and who under the procedure obtain a complete relief,—we believe in those cases it is better to continue the pneumothorax indefinitely.

DR. JOHN W. FLYNN, Prescott, Arizona (closing).—I would like to say one word. Dr. Watkins is right when he says that he is the dean of the profession so far as pneumothorax is concerned in this state. The first compression I had done, Dr. Watkins came up to Prescott and did it for me, and it was the first time I had ever seen it done. That was in 1912 or 1913.

TUBERCULOSIS OF THE EYE AND ITS RELATION TO GENERAL MEDICINE

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**Read before the Tenth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924.*

In the past ten years there has been a greater development from the study of tuberculosis of the eye than in the previous century. The study has not only added to our knowledge of the disease in this organ, but, owing to the fact that pathological changes take place under direct observation, has added greatly to our knowledge of the disease in other parts of the body.

In beginning the study of tuberculosis of the eye, we accept as a fact the statement of experts on tuberculosis, that over 95% of the civilized race have systemic infection early in life. From our standpoint, we do not enter into a discussion of whether this infection takes place through the respiratory, or the gastro-intestinal tract, but leave that to the internist and the pathologist to decide.

The process, after the infection, depends on the ability of the individual to overcome the disease. This is done through the development of tissue resistance to the toxin and the production of localized exudate around the lesions, which subsequently organize and shrink, thus limiting the activity of the bacilli, which eventually become attenuated. Therefore we may have some lesions existing in the body from childhood to old age, varying from those having

marked activity to those containing dead bacilli.

The truth of this condition is well known to all of us through the different tests with tuberculin. In the test, depending no doubt on the number of antibodies in the patient's blood, the reaction is usually in harmony with the amount of activity existing in the patient's body. Certain qualifications of this statement are necessary when applied to people with severe infection, for in some of these cases the tests may be negative owing to the large amount of toxin, which evidently prevents the formation of antibodies.

The lesions of the eye recognized as tuberculous vary from those produced by toxemia, manifesting themselves as asthenopia, to the gross changes characterized as corneal ulcer, iritis, with tubercles in the iris, cyclitis, retinitis, choroiditis, phlebitis, endarteritis and retinal hemorrhage. All these changes are influenced by the amount of activity, the intra-ocular conditions being more frequently found in those individuals having no activity in the lungs. The conditions may be roughly divided into three stages of life. However, no sharp line of demarcation may be drawn, as frequently one overlaps the other. The first

stage is from infancy to puberty; the second from puberty to adult life, and the third, adult life.

First period: The most pronounced cases in childhood are those of eczematous, kerato-conjunctivitis, with corneolimbus ulcers, photophobia, eczema, nasal discharge and enlarged glands, due no doubt to tuberculo-toxemia secondary to glandular involvement, for they seldom have activity in the lungs.

I am aware that tuberculosis is not universally accepted as the cause of this condition, but the preponderance of clinical and therapeutic evidence seems to favor this theory. However, there may be contributing factors, such as digestive disturbance, improper diet, or the absorption of toxic products from infected tonsils, nasal sinuses, or intestinal tract. The toxemia seems to interfere with the natural process of healing, either by flooding the system with toxic materials or by its interference with the action of the antibodies and antigen, possibly through the absorption of the complement. When the secondary toxic material is eliminated, the rapidity of cure is sometimes startling.

Another contributing factor, in my opinion, is the high degree of hypermetropia, which refractive error is sufficient to produce ocular symptoms in children who otherwise might escape.

I have had under observation during the past few years, twenty patients with severe eczematous keratitis, on whom I have tested the efficiency of tuberculin. Previous to treatment, some of the patients had repeated attacks. The diet and hygienic surroundings of all were bad. Without correcting the diet, intestinal toxemia, or using surgical interference on the tonsils or nasal sinuses, treatment was commenced with small subcutaneous doses of old tuberculin. Under this treatment a number showed focal reactions in the eye with doses of tuberculin as low as 1/50,000 of a milligram, and under continued treatment for a few months, the eyes became clear and in all except one case have remained apparently well. In the one case, the acute symptoms subsided to recur three years later following an attack of tonsillitis. After tonsillectomy, an improvement in the eye condition could be noted within 24 hours and continued uninterruptedly.

A low grade of toxemia may be found in the children who have no gross lesion of the eye, but who have headaches and photophobia of more or less marked degree, usually in the afternoon. They are sub-

standard in weight, highly nervous, and frequently with irritable temper. The correction of any refractive error does not relieve the condition, as the same symptoms may occur with an ametropic eye. The fundus discloses a congested retina, with silvery reflexes playing over it along the vessels, and the disk is frequently congested along the edge. The patient has an irregular temperature, many times found only on repeated examinations. Temperature and pulse rate may increase with exercise. The dermal test is usually positive. Some cases improve following tonsillectomy, change of diet and elimination of intestinal absorption, while in others, the condition remains for years, even during the second and third periods of life.

There may occur retinal and choroidal changes in childhood, due to metastasis from the diseased areas. When this does occur, there is evidently spontaneous healing, leaving a patch of retinal pigment, with atrophy of the choroid through which can be seen the white sclera. These spots are only occasionally found, indicating that it seldom occurs.

Second period: There is no fixed age at which this period begins, as it depends altogether on when the infection occurs and on the general health of the individual. Should the patient be constantly exposed to infection, the activity is usually longer and may result fatally. When the living standard is high and no disease exists with which one may come in contact, the period is shorter. The cases in which the infection results in relative immunity and the life of the individual is carried on without too much physical or mental strain, may remain inactive. However, there may be redevelopment of the original lesion, or distribution of the infection by metastasis at any time should the resistance be lowered.

There is no sharp line of demarcation drawn between the disease of childhood and that of adult life, but we may safely say that the period between late youth and the first few years of adult life is an extremely dangerous one. It is at this time, if the individual has not developed tissue resistance that the redevelopment of the disease, or reinfection is most disastrous.

It has been my experience to find frequently in early adult life, cases of monocular mydriasis, due no doubt to the involvement of the sympathetic nervous system. One of my cases at the age of 24 had the pupil of one eye dilated with no reaction to light or accommodation, which was the only symptom of tuberculosis, from which disease she died five years later.

There are often found during this period the same symptoms as in the second stage of the disease in childhood, which, in the adult are usually ascribed to eye strain. It is not infrequent to find a patient with active pulmonary tuberculosis, who gives a history of having headache, photophobia and all the symptoms of eye strain, months and sometimes years before the activity in the lungs was discovered. These symptoms are so common in tuberculosis of the lungs that when they occur chest examination is always indicated, and even where no activity is found, they should be continued under observation.

Also, in the second period of life, occur the involvement of the deeper tissues of the eye, especially scleritis, sclerosing keratitis and retinal hemorrhage.

Third period: In adult life, the cases with marked active tuberculous involvement have symptoms similar to those found in the second stage of childhood. The headache may be so severe as to lead one to suspect meningitis and is usually not relieved by putting the eye to rest with atropin, or correcting any refractive error. However, the latter should always be done. There should be a limit to the amount of close work and the eye should be protected from the light, but no great relief may be expected unless the physical condition improves.

In the active stage of tuberculosis, there is seldom an involvement of the deeper tissues of the eye, being due no doubt to the fact that any infection passing into the blood stream is destroyed by the protecting antibodies developed to resist the systemic infection.

The second group of cases in the adult is made up of those who have overcome their primary infection to such an extent that they are usually classified as healthy individuals. There may remain, however, a few latent foci, either in the lungs or glands, which are so insignificant that they are not producing enough toxin to stimulate the development of antibodies. These bacilli become attenuated and less virulent than those producing the initial lesion, so that when an infection from one of these foci enters the blood stream, there is little resistance given to its invasion of other parts of the body. It is consequently patients of this character who have involvement of the uveal tract, showing as localized choroiditis, tubercles of the iris and other intraocular involvement. Contributing factors, the same as those found in childhood, must always be considered and especial consideration should be given the

nasal sinuses, the teeth, tonsils and gall-bladder.

A grade lower than these cases are those which have symptoms resembling those in the second stage of childhood. In addition they are highly nervous, have migraine and present the picture familiar as hysteria, or neurasthenia. They are frequently underweight and have been most of their lives.

In some of these cases we find a silvery reflex over the retinal vessels and a slight exudate over the disk. Old corneal nebulae may occasionally be found, indicating keratoconjunctivitis in childhood. Correcting the refractive error may improve the condition to a slight degree, but many cases are examined year after year, going from one ophthalmologist to another, without relief.

It is not infrequent that from these symptoms I have been led to suspect pulmonary tuberculosis, which was confirmed by physical examination. However, the majority of the cases have no physical signs by which we can make a diagnosis and are finally classified only by testing with tuberculin. I have recently had a case of a woman, sixty years of age, who has been under observation for fifteen years, well nourished, with absolutely no symptoms familiar to us as tuberculosis. She has never been comfortable with glasses, has had persistent photophobia and been unable to use her eyes for close work for any length of time. It was only when there began the development of central macular change of the retina that I finally suspected latent tuberculosis, which was proved to my satisfaction by testing with tuberculin. After the initial diagnostic dose, she showed a reaction to 1/100,000 of a milligram.

DIAGNOSIS

General Examination: We are assisted in making a diagnosis by a physical examination of the chest. However, the tendency of the average physician is to report negative cases having no physical findings similar to those of active tuberculosis. In other words, where no rales are found in the chest, nor any rise of temperature above normal occurs, the average physician considers there is no tuberculosis. Therefore, in making a diagnosis in occult cases, we are compelled to resort to other methods. The history of the individual's life in childhood should be obtained, as occasionally the information given throws a strong light on the present condition. Especially important is the history of slow recovery following measles or a long period of fever similar to typhoid. In all cases the tem-

perature should be taken at least four times a day for a number of days. In the adult, it is frequently found to be subnormal in the morning, occasionally as low as 95, sometimes not reaching normal during the entire twenty-four hours; at other times it is slightly above normal in the afternoon. A variation of two degrees in 24 hours is strongly suspicious of tuberculosis. However, the disease may be present without this variation of temperature. In adults there is usually a subnormal blood pressure.

Use of tuberculin: Dermal test: This test is only of occasional value in making a diagnosis of localized tuberculosis by producing a focal reaction. However, it is frequently of value in determining the sensitiveness of the individual to tuberculin, thus indicating the size of the initial subcutaneous dose, which should always be small in the case of a marked local reaction.

Subcutaneous test: In the use of a subcutaneous injection of tuberculin for diagnostic purposes, we expect in a positive case to have a rise of temperature within 48 hours, a local reaction at the site of the injection and a focal reaction indicated by increased activity and exudate around the lesion. The size of these doses varies with the age of the individual and the amount of systemic infection. It may be roughly stated that in a child without pulmonary activity, the initial dose may be 1/50,000 of a milligram, while an adult without activity may be given 1/10,000 milligram. These doses are not standard, but are considered safe and conservative. Where there is no reaction from the initial dose, the amount should be doubled each 48 hours until the three reactions occur, remembering that the danger of administering tuberculin subcutaneously is usually in the initial dose.

Therapeutic test: In some cases we feel so positive of our diagnosis that the preliminary tests are not given and the case is immediately put on therapeutic doses. Individuals vary in response to this treatment, some of them clearing entirely before a reaction occurs, while others require a dose producing a focal reaction before any improvement is noticed.

I have seen a case of sclerosing keratitis

develop while the patient was under tuberculin treatment, which started to improve immediately after a dose causing a slight reaction. We should remember that there is no way in which tuberculin can be standardized and that the products of each laboratory may vary in strength, depending no doubt on the strains used in producing the product.

The question arises in the administration of tuberculin as to whether or not we are dealing with a specific proteid. Of this I am fully convinced, otherwise we would not have a general, local and focal reaction, with two minims of the solution, representing 1/100,000 of a milligram, in comparison with ten milligrams of milk or other proteid.

Contra-indications for the use of tuberculin in tuberculosis of the eye are the same as in tuberculosis of the lungs—activity of marked degree and a daily rise of temperature of over one degree.

CONCLUSIONS

In conclusion I wish to emphasize the facts:

That 95% of the civilized race have tuberculosis sometime during life, usually in childhood.

That practically all of them go through a period of infection untreated.

That there may remain latent foci even in apparently healthy individuals subject to relighting up of this area, or the distribution of the infection by metastasis to any part of the body.

That the metastatic infection in the eye is brought to the attention of the individual more often because the function of this organ is so delicate that any interference with its action is immediately noticed, while in other parts of the body it may go on unobserved.

That the changes in the eye are under direct observation and the effect of the diagnostic and therapeutic doses of tuberculin may be closely watched.

That pathological changes represented in the eye lesion no doubt occur in other organs or tissues of the body and pursue the same course.

NASAL TUBERCULOSIS*

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**Read before the Tenth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924.*

I wish to present for your consideration and discussion a composite description of nasal tuberculosis. Much of the material

herein presented has been obtained firstly, from a review of the literature beginning as far back as 1890, with monumental arti-

cles by such men as Hahn, Hajek, Chiari and Freer; secondly, from discussions with my confreres, and lastly, from the author's personal experience with this disease condition.

The entrance of tubercle bacilli in the nasal mucosa may be followed by the development of one of two groups of phenomena; the tuberculous and the lupic. Clinically the two processes are usually distinct, but their practical identity must nevertheless be admitted. They develop from the same bacillus, their symptomatology differs but little and that largely in virulence or intensity, and their histologic structure shows variations in grade of development only, not in type. Independent only in name and certain minor symptomatic and unknown etiologic considerations, a comprehensive discussion of either disease without embracing the other to a certain extent is impracticable. Because of this dual nature, the literature is both voluminous and to a certain extent misleading, many observers having maintained the absolute identity of the two processes, while others persist in classifying them as distinct pathologic entities.

For the sake of a clear understanding of the matter, therefore, I have sought out from the literature what is regarded as the distinguishing characteristics of the lupic type and the tuberculous type proper, and shall present them for comparison.

The lupic type occurs commonly at the age of puberty and usually in the female, while the tuberculous type proper occurs between the ages of 25 and 60, and is at least as frequent in the male as in the female. The lupic form is a primary form of nasal tuberculosis of exceedingly slow course, extending at times over decades. It may remain the only evidence of tuberculosis in the body, generally leading late, if at all, to secondary tuberculous deposits. The tuberculous type is more rapid and less benign and is often secondary to other tuberculous foci, especially pulmonary tuberculosis, and if primary, is disposed to an earlier creation of other tuberculous affections.

The lupic type appears in the form of granulations and diffuse infiltrations, which, instead of breaking down rapidly, have a tendency to cicatricial metamorphosis, so that the disease heals by scar formation in some places while progressing in others. The tuberculous tissue in lupus advances superficially in the mucosa and invades cartilage and bone, if at all, late in its course. In contradistinction to this, the granulation tissue of the tuberculous type,

in most cases, breaks down early by caseous degeneration and produces ulcerations of a more or less destructive character, which are disposed to attack cartilage and bone at an earlier stage than in the lupic type, while cicatrization does not occur.

Granulomata, often of considerable size, are occasionally found in the tuberculous type, but not often in the lupic. Again, in the lupic form, even when at first intranasal, it is very apt to extend to the skin of the external nose, lips and face. In the tuberculous type, the disease commonly stays within the nasal interior.

Histologically, the lupic nodule is a miliary tubercle, but usually, instead of disintegrating by caseous degeneration, it disappears by cicatrization, while the tubercle of the other type undergoes the central caseation and destructive softening characteristic of the typical miliary tubercle.

Summarizing then, the term lupic may be used to designate the well known type of mild slow cicatrizing tuberculosis, which resembles the fibrous type of pulmonary phthisis and which is less apt to destroy the structure it invades than to replace it with connective tissue.

The tuberculous type shows a tendency on the other hand, to caseation and breaking down without the repair; this is characteristic of the more virulent forms of tuberculosis.

The large proportion of cases of the milder lupic form of tuberculosis in the nose indicates a vigorous resistance of its structure to tuberculous infection. So long as the disease remains intranasal, it will always be difficult, because of the many cases showing mixed characteristics of both lupic and tuberculous types proper, to tell to which of the two disease groups a given case should be assigned. But as the affections are etiologically one and differ merely in respect to prognosis and pathological changes, the distinction is not of great importance.

When we go into the etiological factors, the opinion prevails that the usual beginning of both the lupic and the tuberculous types on the foremost part of the septum is an evidence that the bacilli find lodgment in the nose as the result of direct inoculation, for the surface of the cartilaginous septum is especially subject to the impact of particles in the air current, to friction with the handkerchief, and to abrasions and eczematous conditions due to this friction and to picking the nose.

Hematogenous conveyance of the bacilli into the nasal tissues is thought possible in rare instances. While the authorities con-

cede that absolute proof that the tuberculous infection is primary is to be supplied only by an autopsy, it is nevertheless agreed that the course of almost all cases of the lupic type and that of many cases of the tuberculous type proper, indicates a primary tuberculous lesion. In spite of the exposure of the nasal passages to inhalation infection, the rarity of tuberculosis in this locality is explained as due to bactericidal qualities of the nasal mucus, the ejecting action of the ciliae of the epithelium and the protecting presence of a subepithelial adenoid layer of cells.

The patients afflicted with the disease usually present themselves with the subjective symptomatology of long standing and progressive nasal obstruction, accompanied by scanty viscid discharge and crusting. Objectively, the intranasal examination reveals one of four forms of involvement, namely, the tuberculous ulcer, the tuberculous tumor or tuberculoma, the diffuse infiltration, and the formation of granulation areas, the latter being the variety characteristic of the lupic type.

The tuberculous ulcer is usually secondary to pulmonary or laryngeal phthisis. The tuberculous infiltration which precedes this ulcer is rarely seen, as it creates no symptoms. The ulcer is usually found to be solitary and upon the anterior part of the cartilaginous septum. It is round, oval, or irregularly gnawed out and scalloped. Its floor is usually covered by a yellowish, thin, false membrane, out of which fungous, pale granulations arise. The tissue surrounding the ulcer is rarely congested, is often quite pale, and is commonly invaded and thickened by the tuberculous infiltration. The borders of the ulcer may be steep, but are usually shallow, and in almost all instances are so ill-defined that it is impossible to tell exactly where, beyond the ulcer, the intact epithelium begins, so much is it fretted by minute ulcerations scattered about the ragged edge of the central one.

While the tuberculous ulcer is seldom rapidly destructive and is usually slow to invade cartilage and bone, still, in the course of time, it produces perforations of the septum and caries. In spreading beyond its usual site on the septum, the ulceration commonly progresses across the nasal floor to the inferior turbinated bodies.

The tuberculous tumor or tuberculoma may be spherical, or lobulated, and may have a papillomatous, smooth or irregular surface, and may be pedunculated, but it usually has a broad base. The tumors are usually solitary, appear often on the cartilaginous septum and next in frequency up-

on the inferior turbinated body. Grayish red, or dark red or whitish in color, these growths may vary from pea-size to a mass which may completely fill the nasal chamber. Characteristically, these tumors are very friable and have a marked tendency to ulcerate.

The infiltrative form of this disease when actively progressing, is the most formidable variety of nasal tuberculosis. It produces diffuse swelling of the part of the nose attacked, which is usually the cartilaginous septum, with its overlying submucosa and perichondrium. Thus entering deeply into the frame work of the septum, the disease expands it in the form of diffuse, pale, pink, resistant swelling, whose surface may show granulations or ulcerations in places. In marked cases the thickened septum may appear like a tumor filling both nares and feel like a hard lump when the external nose is grasped. This was the situation two of my cases presented. The infiltration at times breaks down, leading to multiple septal perforations, with extensive destruction of the part. The disease is apt to advance into the external nose from underneath, causing it to thicken and broaden.

As before mentioned, the granulating form is typical of the lupic type, and commonly begins, as do the other varieties, upon the cartilaginous septum, and appears as a bed of grayish red raspberry area covered with scabs. This is the most benign of the various types of nasal tuberculosis. It usually spreads to different portions of the mucous membrane, but generally remains superficial. It commonly spreads to the external nose and may narrow the nasal introitus.

Microscopic examination of the tissues removed from the nose in this disease shows a diffuse infiltration of lymphoid and epithelial cells traversed by connective tissue bands, with often so great a scarcity of typical miliary tubercles and isolated giant cells that many sections may need to be examined before these objects are discovered. Tubercle bacilli are very difficult to find in the tissues and are usually found in the deeper parts of the products of the disease.

While the most important means of establishing the diagnosis is the histologic examination of the excised tissue, the microscopic findings may, nevertheless, be doubtful, because of the rarity of the elements distinctly tuberculous in the specimen examined. Typical miliary tubercles with a center of caseous degeneration and giant cells may be regarded as path-

ognomonic. The history of the case, its gross appearance, the finding of giant cells in fields of epithelioid and lymphoid cells establish the diagnosis with sufficient certainty, even if typical tubercles and bacilli are not found in the section.

Inoculation of suspected tissue into animals, even if they become tuberculous, does not verify the diagnosis, as it is impossible to exclude contamination of the specimen employed with tubercle bacilli accidentally present in the nares.

In the differential diagnosis we must bear in mind usually the following conditions; syphilitic ulceration and hyperplasia, benign and malignant neoplasms, rhinoscleroma, and other infective granulomata.

In considering the prognosis of nasal tuberculosis, we must bear in mind that it is commonly a benign and often a primary form of tuberculosis localized in a tissue little susceptible to the disease and permitting but few bacilli to penetrate it. If, therefore, the involved tissue can be carefully removed, recovery without a relapse is a possibility. In the lupic type, and more commonly in the tuberculous type, secondary deposits in the form of pulmonary tuberculosis, tuberculous meningitis, tuberculous lymphomas, joint disease, or some other form of tuberculosis may occur as long as the primary affection in the nose is not removed.

In considering the treatment of nasal tuberculosis, we must bear in mind that the structures forming the nasal cavity are not of vital or the highest functional importance. Again, the region is comparatively accessible, and for this reason, primary tuberculous tissue within the nose is somewhat favorably situated for the thorough surgical removal. As compared to surgical excision, all the other methods of treating nasal tuberculosis are far less certain in their results, some being but vaguely experimental, and they are only justifiable where the extensions of the disease have gone so far that surgical removal involves great disfigurement, such as the sacrifice of the external nose, or where these extensions have entered regions whence they cannot be removed by operation with the preservation of life.

Even a careful excision will, of course, give no insurance against a reappearance of the disease somewhere in the nose, for the least remnant of tuberculous tissue left will reproduce the disease, and in such instances, the tuberculous granulations must be followed up by secondary operations until they no longer return.

The measures which may be employed

when the disease is beyond operation, are the excision of obstructing masses of tuberculous tissue as far as possible, curettement followed by lactic acid or electrolysis or galvanocautery, tuberculin, phototherapy, or some combination of these.

In conclusion and by way of summary, I want to emphasize the following points:

(1) Nasal tuberculosis is not an uncommon disease.

(2) It occurs in two types, the lupic and the tuberculous type proper.

(3) It occurs usually secondary to pulmonary and laryngeal tuberculosis, but can also be primary.

(4) The treatment is essentially surgical.

(5) Nasopharyngeal examination should be a part of the routine investigation in every tuberculous case, thus aiding the early diagnosis, which in turn means better prognosis.

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DISCUSSION

DR. D. F. HARBRIDGE, Phoenix, Ariz. (opening:—Relative to Dr. Schuster's paper, I fully appreciate the great importance of it, so much so that I really feel incompetent to discuss his very excellent contribution, and will leave that for those who follow.

But in reference to Dr. Stark's paper, I wish to remind you that we are dealing with a master mind in this particular branch of ophthalmology, as he is extremely well versed in it.

I do not suppose there are any of us who will be able to fully comprehend all the details of the tuberculosis question as it involves the various organs of the body. The rule was laid down by Calmette a good many years ago that if a child had tuberculosis before the fifth year, he might recover from the disease and the germ remain more or less dormant, and this rule is recalled in the statements made by Copey in the May number of Brit. J. Oph. in which he has observed that in certain individuals who show certain types of changes in the eye, there are found certain translucent, minute little bodies which are frequently overlooked. Since this was called to my attention, I have observed this condition in several instances, and in following down the history of such an individual you find in his history that he has given evidence of having had a tuberculosis disturbance of some character of one or another of his organs. This is borne out by the investigation of ninety-two cases of scrofulous eye diseases, made by Dr. Igersheimer. He was enabled in after years to trace these cases; he found that in not less than 13% they had developed tuberculosis. In other words, it emphasizes the point that very likely earlier in life, having

this infection, a certain immunity has been established. Later on in life, through a general depression, a renewal of the infection has occurred.

In relation to the eye, one of the very pleasing features about this particular branch of this work is that it is directly under your observation, and you are able to see with your own eye the different changes, although not of course the small microscopic alterations.

These tubercular breakdowns which we have in the eye are not always entirely dependent upon tuberculous infection; they may have, for example, an underlying cause, which may be tuberculosis, but the fire may be fed by infection from some other source. We can build a fire with wood and keep it up by pouring on gasoline, and relatively the same thing may be applied to the eye. The underlying cause, the growing ground, so to speak, may be prepared by tuberculosis, and later on in life your process may be carried on by some other type of infection.

Dr. Stark mentions the peculiar types of refractions, and another noticeable thing is the rapid and premature lessening of the accommodative qualities in the eye, to which they seem predisposed.

Regarding the subject of treatment, there is only one point I would like to criticize,—and the doctor is a warm friend of mine,—is that he says the eye should be protected from the light. It seems rather paradoxical that light should be a beneficial factor in tuberculosis, and then put on the patient a pair of dark glasses. I think you ought to let in a little light, doctor.

With regard to tuberculin, I would like to say that from my observations, in the few years I have used it, that one should begin with almost infinitesimal doses. I never think of beginning with more than 1/500,000 mg., which is almost nothing, as you know; in using these small doses you are gradually getting your patient in shape to become accustomed to the use of this remedy; as you climb up you find that with comparatively slight doses you get a distinct reaction. I have had several cases, one of which I have watched for years, as I have had her under my observation, having carried her along on 1/1000 mg. We have recently had a very severe reaction in this case with using 1/500 mg.

I just want to add a word to quote Dr. Jackson of Denver, with regard to the giving of tuberculin. He stated that "while such patients are enjoying good health, a continuance of the good health depends upon his observing the conditions under which he attained it."

DR. H. T. BAILEY, Phoenix, Ariz.:—I think I could best discuss Dr. Stark's paper by reporting a case I have had.

This case I speak of was a young lady, seventeen years of age who came under my observation in July, 1922. She complained of pain in the eye and extreme lacrimation,—her eyes were constantly covered with tears. We got her quiet, putting in atropine and began to do the laboratory work, because we did not really know what was the matter with her; the Wasserman tests were negative, the gonococci and tuberculosis tests were negative and the urine was practically normal. But the Von Pirquet test was positive.

At first this young lady showed up white spots on the eye, that was on July 1st; on July 23rd we began with tuberculin treatment. In a comparatively short time she began to clear up, so that sometime in September the eyes were comparatively clear.

In October her tonsils were removed, and it was about the following April before we got her a pair of glasses. She was a nurse taking training, and of course we gave her rest treat-

ment. After the course of treatment she resumed her work and seems to be all right; she is in the hospital working now.

With regard to Dr. Schuster's paper, the first report we have had on nasal tuberculosis was by Willen in 1798, when he reported a case of lupus of the nose; the next was by Willigh in 1752; he had done four hundred autopsies and found one tuberculous nose. Frielander was really the first one to show us that we had tubercular noses. Men like Mickel have stated that they never saw a lupus, and probably some others have stated that they never saw such a condition of the nose.

Along about 1882 to 1887 they began to pour in,—tuberculous conditions of the nose, and Dr. Schuster has gone into that so thoroughly that it would be a waste of time for me to repeat.

Perhaps we will wonder why we have tuberculosis of the nose, and there really is a great question as to whether we really have a primary tuberculosis of the nose. The probability is that it has been in the system, from which the nasal infection develops; sometimes it might be caused by a blow on the nose and scratching it, causing an abrasion, and the tuberculosis of the nose is the result.

It is reported that one woman contracted this disease from using the handkerchief of a man who had tuberculosis. A nurse is reported to have given tuberculosis to three babies. It was found that the nurse had a tuberculous ulcer of the maxillary sinus which had broken through into the mouth. She had been in the habit of tasting the babies' food, and three of the babies contracted tuberculosis and died.

The reason we do not have more of this is because, principally, of the secretion. The secretion in the normal nose is one of the best antiseptic secretions of the body that we know of.

Eczema of the nose sometimes leads to tuberculosis of the nose, and then there is the tubercular tumor, or tuberculoma. As he has told you, sometimes it is so large that it fills the nasal chamber. He has described to you; after awhile it begins to break down into a cheesy material, and when you first see it you wonder whether it is an abscess; after this breaks down you have a tubercular ulcer.

I have only seen a few cases of tubercular sinuses. I have found one or two maxillary sinuses with tuberculous conditions.

I believe that is all.

DR. J. W. LAWS, El Paso, Texas:—I am not capable of discussing these papers, as these gentlemen are specialists. But I do recognize the value of work done by men like Dr. Stark and Dr. Schuster.

We often have local manifestations before tuberculosis really develops. In taking the history of cases a man will often give a history of an infection that proved to be tuberculosis before any general tuberculosis was recognized.

I have had occasion to observe that in cases of underdeveloped, highly nervous people we would have, if their temperatures were taken, a subnormal in the morning with a temperature in the afternoon, and that when examined by Dr. Stark we have found definite indications of tuberculosis, where the physical signs did not show it. Now if it is possible to detect tuberculosis earlier in the eye, we certainly have in a work of that kind a very valuable contribution to medicine.

All of us know that our tuberculous patients have a considerable disturbance of the eye, and often refraction does not relieve this condition. Several cases of this kind have been relieved when it has been observed that there was a tuberculous condition of the eye.

I want to say further that I have administered tuberculin and have had Dr. Stark examine the eyes following the giving of certain doses, and he has been able to call a halt as to the size of the doses by the focal reaction in the eye.

I think the work done by Dr. Stark is a valuable contribution to medicine, and so far as I know he is a pioneer in that particular field of work.

DR. G. WERLEY, El Paso, Texas:—I have seen a good many of Dr. Stark's cases that he has turned over to me to administer tuberculin, and in treating twenty or thirty of them the results have been marked in all cases except one, that of a small child. In all of these cases all other means had been used by their physicians before coming under his care, and I have seen a number of these cases clear up almost immediately on tuberculin, even after having every other kind of treatment.

It seems to me that there is one point of resemblance between tuberculosis and syphilis, and that is that it becomes latent, just as syphilis does, but it is hardly ever thoroughly eradicated.

If I have the data correct in my mind, a person who has no tuberculosis will not react to tuberculin; and the fact that so great a number react to it must show that they are still infected with it, and are not really well; that it has not been eradicated, and this latent tuberculosis, just like latent syphilis, may be the cause of many unsuspected symptoms.

DR. H. H. STARK, El Paso, Texas, (closing):—In order to clear up a little misunderstanding of Dr. Harbridge, in these cases of intense astigmatic involvement, where you get a persistent headache and photophobia, (I think all of you men who know tuberculosis will recognize these cases) sometimes the pain is so intense, and they are so afraid of the light that it is impossible for them to stay in a bright light; these are the types that have persistent headaches, day and night. On the other hand, the principle treatment for localized lesions is the same as that used in general tuberculosis;—that is, of rest. In addition to that, dilate the pupil, which gives them the benefit of heliotherapy. There is no question but that many of these cases would get well by dilating the pupil and giving the eye complete rest.

The doses of tuberculin to be given depend largely on the individual case and on the doctor using it. As you go along you become much more efficient and competent in the use of this remedy and the doses to be given. The initial dose is the dangerous dose,—that is to the eye. I think I failed to express the point that in active tuberculosis we do not use tuberculin at all; it is rather the latent cases that I am speaking of.

As I have just said, the initial dose is the dangerous dose. If you could see the reaction, you would be startled by the small amount necessary to produce it. The pupil should always be dilated, because the exudate will sometimes completely fill the pupil, and you do not want that to happen; that is to be avoided. The smallest focal reaction we can get is the one we want.

Of course we all accept the fact that you can give an individual without tuberculosis any size dose of tuberculin. I think there are instances of 100 mg. being given without bad results. In starting giving it, the doses should be very small, not more than 1/5000, and the reaction will be slower. The case Dr. Bailey has described is typical. The spots he mentions, white spots, or little light colored spots, perhaps two or three of them, gradually coalescing. In some instances they

get into such a mat that the person can not see at all, and it will completely cover the cornea. This type of case, the way it develops, is typical of tuberculosis and these spots disappear very rapidly after taking tuberculin. In some cases you may find with white or light spots on the cornea, the spots will disappear spontaneously. These are practically all done by the use of tuberculin.

DR. S. A. SCHUSTER, El Paso, Texas (closing):—I would like to make the point that nasal tuberculosis is almost always secondary. Primary nasal tuberculosis is a possibility,—I would rather put it that way, as it illustrates my point.

A typical case I had of tubercular ulcer was a Mexican boy; he could not get any air into the nose at all. He was a very acute case; he passed in'o coma and shortly after died of tuberculous meningitis. The nose was absolutely filled with a tuberculous mass, the nasal passages being so narrowed that you could hardly see an opening. This is the kind of a case that makes nasal tuberculosis a reality, and stimulates earlier diagnosis.

I want to thank Dr. Harbridge and Dr. Bailey and others for their discussion, and I would like to express the point that nasal examination should take place in all tuberculosis suspects.

DR. T. T. CLOHESSY, who has been located at Buckeye, Arizona, for about three years, recovering from a physical breakdown and attending to the community practice, has moved into Phoenix and resumed the practice of his specialty of Dermatology. Dr. Clohessy will have offices in the Luhrs Building, and will be a welcome addition to the medical fraternity of Phoenix, where the need for a dermatologist has frequently been felt. Prior to coming to Buckeye, Dr. Clohessy practiced dermatology in Kansas City.

AMERICAN COLLEGE OF SURGEONS SECTIONAL MEETING IN EL PASO

The Sectional Meeting of the American College of Surgeons for the district including Texas and New Mexico will meet in El Paso February 5th and 6th. The headquarters will be at the Del Norte Hotel. A very excellent clinical program is being prepared by the local members of the College and a number of prominent speakers will be on the evening programs. Included among the outside speakers will be the following:

Dr. M. T. McEachern of Chicago, on "Standardization of Hospitals."

Dr. Allan Craig of Chicago, on "Tuberculosis and Timely Health Topics."

Father C. B. Moulinier, S. J., on "Scientific Medicine."

Dr. J. O. Polak of Brooklyn, N. Y., will present a paper.

Dr. A. W. Adson, of the Mayo Clinic, will have a paper.

Effort is being made by the Local Committee to arrange a special clinic for Dr. Edward Jackson, of Denver, Colo.

Members of the medical profession generally throughout the southwest are invited to this meeting.

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Southwestern Medicine

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DR. H. H. STARK	El Paso
DR. W. WARNER WATKINS	Phoenix

OUR NEW STYLE

With this issue, several changes are inaugurated in the management and style of the journal.

In the first place, the business management is taken over by the publishers (The A. C. Taylor Printing Company), and they will have entire charge of the advertising pages. All correspondence about advertisements should be directed to them.

The Editorial Staff remains unchanged for the year, except that a new Associate Editor has been selected for El Paso County (Dr. Varner, succeeding Dr. F. O. Barrett).

Our change in style consists in our joining the ranks of those journals whose reading pages measure 6 x 9 inches. Our advertisers are thus given an advantage of a larger page without increase in cost to them. Our number of reading pages will be slightly reduced without cutting down the amount of material published. The columns will be 3 x 9 inches, which will improve their appearance considerably. We believe the titles of papers as they appear this month represent an improvement over the old style.

We take the journal into its fourth year under the present management, confident that it will continue to grow and deserve the cooperation which we hope to receive during the year.

A NEW AND BETTER YEAR

We extend to the readers of SOUTHWESTERN MEDICINE a cordial greeting,

and our hopes for a successful and Happy New Year. At the beginning of the fourth year for this journal under its present management, we are hopeful for a better journal in many respects during 1925 than has been supplied during the past three years. But the realization of this expectation will depend on several things. The editor of a journal like this must needs have a sublime faith in his professional brethren, because the success of such a journal does not depend on the editor but upon the cooperation of those same brethren.

The editorial department of this journal is not, itself, a creative activity. Its function is to arrange and present to its readers information regarding the medical activities of organized medicine in the southwest. It is obvious, therefore, that unless we are supplied with this information from month to month, the reading pages of the journal will fail in their function. We are convinced that the printing of scientific papers is a minor function of this journal, and that we will never find our field of usefulness as the OFFICIAL ORGAN of the constituent societies, until these pages reflect to the minds of their readers the activities of all organized societies in the southwest, as fast and as often as those societies function in any capacity. The scientific papers which we print are not of value in themselves, primarily, but are worth while in so far as they tell the medical profession of the southwest what other medical men in that district have been hearing, think about or doing.

There are three lines of activity which must be exploited in these pages, and three groups of people who must use this journal to broadcast their messages to the profession of the southwest, if we are to find our rightful sphere in 1925. These are:

FIRST:—The national organization's activities and the American Medical Association's officials. There will be no difficulty here. The national organization will speak as often and as long as we find it advisable to give them space. It is the purpose of this journal to concentrate upon organization work during the coming year, to the end that every reputable doctor in the southwest is affiliated with the county, the state, the district and the national societies. It is not fair nor proper to stop with the county and state organizations in our campaigns for members; we have not completed the work until all of our county and state members are Fellows of the American Medical Association. More about this later.

SECOND:—This journal is the direct mouthpiece of the four societies which own it. The secretaries of the two State Associations, of the El Paso County Society and of the Medical & Surgical Association of the Southwest should reach their constituents through this journal. No issue of the journal should go out without a direct message of some sort from these officers. Each secretary should have a department in the journal and should present therein the activities of his office. The same is true of the councillors of the state societies. The only definite function of the councillor is stated in the constitution to be that he shall visit each of the societies in his district at least once a year; when he does so, he should report the conditions found through the pages of this journal. These four organizations each appropriate a large proportion of their annual dues in sending the journal to their members and in subsidizing the editorial expenses of the journal. The secretaries are supposed to secure the value of that appropriation for their respective societies by utilizing the journal to build up those societies and weld their constituents together into a unified organization. This has not yet been done by any one of them, with the possible exception of the present secretary of the New Mexico Society; he has the idea and needs only to enlarge upon it a little.

THIRD:—This journal is the direct bond of union between the county societies over the entire southwest and the medical profession of that district. Every activity of every county society in New Mexico and

Arizona should be promptly and fully reported in this journal. That can be said, without any qualification, to be the most vital task of every county society secretary. This is stated deliberately, after many years of experience as secretary of all kinds of medical societies. Properly and adequately publishing an account of the LAST meeting is of more importance than arranging for the NEXT meeting, because the success of the next meeting will be assured if the last meeting is properly exploited in print. County secretaries are no more than human. Most of them who accept that thankless job want encouragement in their work. We know of one county secretary who was faithful in sending reports of his meetings, and they were more interesting than most of the scientific papers published. Some member of his society spoke slightly of his reports, and that was the end of any record of that society's activities. That member would have performed a better service had he resigned from the society, instead of discouraging a faithful secretary's good work. The point we wish to make, here, is that the members of county societies should encourage their secretaries to send in reports; compliment him on them when they appear in print; criticize him if he fails to report his society's activities. This journal is open for any paper read before a county medical society and sent in by the secretary of that society. Such papers represent an activity of a society, and as such they have first claim on the space in this journal. If we had to choose between the publication of an exclusive paper by the most eminent physician or surgeon in the country and the publication of a paper read before his county society of a dozen members, on "How to Wean a Baby," by Dr. Reuben of Podunkville, Ariz., the eminent doctor's scholarly contribution would go into the waste-basket or be returned to him, without a tear shed. It would give us great joy to take Dr. Reuben's presentation, correct the spelling and punctuation, if it required this, type-write it for him so the printer would accept it, and print it as the leading article in the journal. Why is this? Because Dr. Reuben is a member of our family of the Southwest. What he says and what he thinks, whether it is right or wrong, means infinitely more to us than what any eminent "outlander" says or thinks. We can get the ultra-scientific contribution of Dr. Outlander from some other journal, but unless THIS journal reflects the ideas of Dr. Reuben to our readers, we will never get acquainted with him. Right there we

will stop, with the promise of an editorial next month on Dr. Warnshuis's first requisite of a successful medical organization, "Get Acquainted." Watch for it.

EL PASO COUNTY MEDICAL SOCIETY MEETING, NOVEMBER 24, 1924

The meeting was called to order by the president at 8:25 p. m. There were present twenty-two members and several visitors, among whom were Dr. Ralph Homan, Mr. Sol Wolf and Mr. Wallaker. There were also eleven dentists present, among whom were Drs. Bauchert, Neil, Mengel, Izard, Akeroyd, Robinson and Hoenes.

The papers at this meeting were presented by dentists of the El Paso Dental Society. The minutes of the previous meeting were not read and there were no case presentations.

The first paper of the evening was read by Dr. N. F. Bauchert, entitled "Focal Infection of Dental Origin."

The two papers being of such closely allied nature, the president announced that discussion would be deferred until after the second paper.

The second paper was read by Dr. L. A. Neil, entitled "Periodontal Pathology, or the So-called Pyorrhea Alveolaris." Dr. Neil illustrated his paper by some excellent slides, which particularly demonstrated the growth of bone around the teeth, following treatment of the teeth for this disease.

The papers were very interesting and attracted much attention, and were discussed liberally by Drs. Leigh, Werley, Davis, Strong, Turner and Branch, among other physicians, and Dr. Robinson, for the dentists. Discussion was closed by Drs. Bauchert and Neil.

The president announced that on December 1st, the date for the annual meeting, a concert which had been scheduled for Miss Alma Gluck on that same date, had been cancelled, and that unless otherwise desired, the meeting would be held as usual on Monday evening, December 1st, instead of Tuesday, December 2nd, as previously planned.

The president also announced that Lieutenant Colonel Shockley had invited the Medical Society to meet at Beaumont Hospital on December 8th.

The president announced that it had been customary to discontinue the Society meetings after the annual meeting until after the first of the year and asked what the members desired to do about it.

Dr. Werley made motion that we ad-

journal until the first January meeting, after the meeting of December 1st. This motion was seconded by Dr. Cummings and carried.

There was no other business and the meeting adjourned at 9:45.

F. O. BARRETT,
Secretary-Treasurer.

EL PASO COUNTY MEDICAL SOCIETY ANNUAL MEETING (DECEMBER 1, 1924)

The annual meeting of the Society was held at the University Club, December 1, 1924.

The meetnig was called to order at 8:07 p. m. by the president. There were present 52 members and two visitors. This meeting was devoted entirely to the election of officers and a general meeting of good fellowship, punctuated by doughnuts, cider and cigars.

Dr. W. L. Brown made a motion that appropriate resolutions be drawn in consideration of the death of Dr. Paul Gallagher's little boy, which occurred on Friday morning, November 28th. The motion was seconded by Dr. Hardy and carried.

The president appointed a committee composed of Drs. Hardy, Leigh and Cummings to draw such resolutions and empowered them to forward the same in view of the fact that there would be no other regular meeting for the rest of this month.

The president called upon Drs. W. L. Brown and C. M. Hendricks, two past presidents, to act as tellers in the election of officers. The first ballot cast was for nomination for president, in which the two highest were Dr. E. B. Rogers, 21 votes, and Dr. Hardy, 15 votes. There were 48 votes cast. For election, there were 51 votes cast, of which Dr. Hardy received 27 and Dr. Rogers 24, and the president announced the election of Dr. John A. Hardy as president for the year 1925.

The next ballot cast was for nomination for Vice President. There were 47 votes cast, the four highest being Drs. Cummings, C. P. Brown, Will Rogers and E. B. Rogers, each of whom received five votes. Having served as Vice President heretofore, both Dr. Cummings and Dr. E. B. Rogers asked to be allowed to withdraw from the race, and the ballot for election was cast between Drs. C. P. Brown and Will Rogers. Dr. C. P. Brown received 19 votes to 12 by Dr. Will Rogers. The president announced the election of Dr. C. P. Brown as Vice President.

The next ballot was cast for nomination for Secretary-Treasurer and Associate Edi-

tor of Southwestern Medicine. The three receiving highest votes for nomination were Drs. Darnell 14, Varner 9, Barrett 9. Dr. Barrett announced that he had already served two years and wished to be relieved, declining to serve another year if elected, whereupon the ballot for election for this office was cast for choice between Drs. Darnell and Varner. Dr. Varner received 27 of a total of 48, and Dr. Darnell, 19 votes. The president declared Dr. Varner elected as Secretary-Treasurer and Associate Editor of Southwestern Medicine.

The next in order was the election of delegates to the State Association meeting. The president announced that the four receiving the highest number of votes would be voted upon for election, the two highest of which should be delegates and the other two alternates. For nomination, Dr. Will Rogers 22, Dr. McCamant 11, Dr. W. L. Brown 13 and Dr. Hendricks 14, were the highest. In the final vote, Drs. Brown and Hendricks were declared by the president as elected as delegates, and Drs. Will Rogers and McCamant were declared to be elected as alternates.

Next in order was the election of Censors, two of whom were to be chosen. For nomination, the three highest were Drs. Cummings 6, Duncan 6 and Witherspoon 10. For election Dr. Cummings received 17 votes and Dr. Duncan 24. These two were declared by the president to be elected, and it was determined by the president that they should "cut" for the two and three year positions.

Dr. Darnell was elected as representative of the American Society for the Advancement of Science, having received a very large majority of the votes.

For Librarian, there were 23 votes cast for nomination, of which Dr. Prentiss received 8 and Dr. Egbert 6. At this point discussion arose as to whether or not this was an elective position and upon referring to the by-laws it was determined that the librarian should be appointed by the Executive Committee, so none was chosen at this meeting.

The meeting adjourned at 10 p. m.

F. O. BARRETT,
Secretary-Treasurer.

MARICOPA COUNTY MEDICAL SOCIETY (Phoenix) Annual Meeting.

On Saturday evening, December 20th, the Maricopa County Medical Society met for its annual meeting, at the Arizona Club. The meeting was preceded by a banquet, tendered by the society to its members and

their wives. About forty members with their ladies were in attendance.

The Women's Auxiliary of the Maricopa County Medical Society is a very active and welcome addition to the professional life of the community. More such mixed dinners and meetings are being proposed for the coming year, probably every two months. The combined meetings will give a chance for the wives of members to become better acquainted and to organize for the purpose of entertainment of visiting ladies when medical meetings are held in the county.

After the dinner, the ladies adjourned to another room, for mah jongg and bridge; they reported a good time and uncovered several players who would compare with the doctors as diagnosticians. (It is not stated whether these players are good or poor.—Ed.)

The members of the society convened in regular session, the first business being the election of officers for the coming year. The election resulted in the following officers:

President—Dr. Geo. M. Brockway, Phoenix.

Vice-President—Dr. Harry J. Felch, Phoenix.

Secretary-Treasurer—Dr. R. J. Stroud, Tempe.

Member of Board of Censors—Dr. J. J. McLoone, Phoenix.

The scientific paper of the evening was by Dr. Watkins on "The X-Ray Evidence of Mixed Infection in Lung Tuberculosis." This was illustrated by slides, showing the characteristic appearance of tuberculous lesions on the x-ray film, and the development of the disease from a single lesion to extensive involvement. He stated that the tuberculous lesion is apical or upper lobe almost invariably, and that it has a characteristic relation to the bronchial tree and a characteristic appearance on the film. Mixed infection shadows may appear anywhere, but usually in the bases or near the hilus, have no definite relation to bronchi, are more likely to be irregularly discrete, and lack the characteristic appearance of the tuberculous lesion. He raised the question as to the distinction between chronic lung abscesses and tuberculous cavities with mixed infection, both as regards diagnosis and treatment. He also raised the question as to the resolution of tuberculous foci, and whether they ever disappear without leaving densities behind. He stated that the x-ray densities were simply a refinement of physical examination, being the means of extending inspection to the interior of the lungs. This is true even when

the x-ray represents about all the information obtainable about the lung pathology.

In the discussion, Dr. Holmes stated that he believed that the physical signs would indicate tuberculosis in some cases where the x-ray was negative; also one case shown on the screen as lung abscess, he regarded as tuberculous cavity; he thought the history of the illness would indicate pretty accurately whether a cavity was lung abscess or not; he also believes that tuberculous consolidations will disappear by resolution, as proven in animals by Gardner.

Dr. Phillips thought that the differentiation of tuberculosis from mixed infection would be very valuable, and that this could be aided by observation of the lungs at postmortem. He did not think the treatment of chronic abscess cavity and infected tuberculous cavity differed materially.

Dr. Smith stated that Dr. Watkins had forgotten something he taught more than five years ago; this was that the physical signs would appear in a tuberculous lung before the x-ray shadows would show tissue changes; he believes that this is true, and thinks it is frequently demonstrated in his experience.

Dr. Bannister stated that he thought

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JANUARY

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the differentiation of chronic lung cavities as tuberculous or pyogenic would be important, and the decision that certain types of infection in the lungs are non-tuberculous would be a decided aid to treatment.

Dr. Tuthill considers that these studies give promise of being very valuable in the diagnosis of lung pathology and hopes they will be continued.

In closing discussion, Dr. Watkins stated that he thinks the chief difference between a chronic abscess cavity and a tuberculous cavity with a pyogenic membrane lining it is in the formation and the mechanical structure usually resulting. This results in much better drainage of the tuberculous cavity which is its chief difference. He also thinks that x-ray has made advances in the past five years and that the failure to show densities in the lung wherever there is actual tissue change is purely technical and not due to the nature of the pathology. An early lesion may fail in demonstration through proper technic. the patient may breathe slightly or move slightly, or the film not be sufficiently clear, and the radiologist will unwisely report no visible pathology. It is not conceivable that actual infection by tuberculosis will proceed to the point of physical signs and clinical evidence, without such tissue changes as are demonstrable by the x-ray; if we consider the innumerable instances in which the physical examination has failed to detect any variation from the

normal in physical signs and yet the radiograph will show gross changes, detectable at a glance, it should make us pause and consider seriously the diagnosis of tuberculosis in the absence of any x-ray signs of tissue change.

Dr. Vivian presented a case of Exfoliative Dermatitis in a man; he asked that comment as to probable cause be not discussed before the patient. The result was attributed to an arsenical manifestation following an injection of neoarsphenamine. Dr. Vivian believed that the lack of kidney excretion accounted for the trouble. Dr. Stroud thought it was due to the patient's not being properly alkalinized, or perhaps the preparation injected was at fault; he had just had two such cases himself. Many cases in army practice during the war followed injection of faulty arsphenamine.

Dr. Vivian was on the program for a paper on "Psychic Impotence," but the hour being so late, this paper was held until another meeting.

Dr. Vivian, the retiring president, thanked the society on behalf of the retiring officers, for their cooperation in making the year a successful one from many standpoints.

The meeting adjourned shortly after ten o'clock.

R. J. STROUD,
Secretary.

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STAFF MEETING OF THE ARIZONA DEACONESS HOSPITAL (Phoenix)

The Medical and Surgical Staff of the Arizona Deaconess Hospital met for its regular monthly meeting at 8:15 p. m. Saturday evening, December 27th, with the following doctors present: Shelley, Smith, Thayer, Couch, Schwartz, McIntyre, Greer, Shields, Thomas, Wilkinson, Watkins, R. C. Martin, Vivilan, Felch, Little, Drane, Mills, Garrison, Franklin, Goodrich and Brown.

Dr. Goodrich, Chairman of the Staff, presided.

The chairman announced that a coat room in the main corridor had been provided by the hospital for the use of the doctors; a telephone and toilet are there for the physicians' and surgeons' convenience, and later better furnishings will be provided.

The chairman further announced that Miss Kettlewell complained that the doctors are not having reports of consultations placed in the histories.

The secretary asked to whom the notices of our meetings should be sent. The consensus of opinion was that they should be sent only to the members of the staff. Moved by Dr. Shields and seconded by Dr. Smith that all reputable men of the city not now members of the staff be sent letters asking them to join the staff. Carried.

The secretary asked if it would meet with the approval of the Staff if the program committee were to select a committee of physicians to study and discuss groups of histories for the program. Moved by Dr. Greer and seconded by Dr. Shields that the program committee be empowered to appoint committees to study and discuss such case histories as the program committees may select and if the physicians in each case approve, for the purpose of getting prepared discussions for the programs.

The motion was generally discussed. Dr. Smith said the arrangement might breed conservatism in making the history. Others said such a practice should lead to an improvement in the character of the records. The motion carried unanimously.

The scientific program was called for by the chairman. The program committee had arranged that the records of the eight deaths occurring in the hospital during November should constitute the program for the evening.

Records of Case No. 3139 were read by the secretary. Abstract of records in the case follows:

Female 21 years of age. Admits self-attempted abortion; complains of cramps in abdomen, nausea and vomiting; abdomen rigid; no localized tenderness; uterus enlarged to about four months pregnancy; cervix dilated but not shortened. pulse 116,

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COW'S MILK contains a much higher percentage of casein than mother's milk because nature intended it for the powerful digestive ability of the calf.

On the other hand, mother's milk contains a lesser percentage of casein and a much higher percentage of lacto-albuminoid—nature's protective colloid which enables the delicate infant organisms to easily digest and assimilate all the nourishment.

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Here is the most approved method of modifying baby's milk with gelatine:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in $\frac{1}{2}$ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method in the proportion of $\frac{1}{2}$ teaspoonful of gelatine to a glass of milk. Because of its purity, it is essential to specify Knox Sparkling Gelatine.

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SINCE placing the original Gilchrist Chlorine Ejector on the market we have, through our dealing with a great many physicians, learned their requirements, and experience has taught us what is demanded in the use of chlorine gas for use as a therapeutic agent. These are outlined as follows:

First—An absolutely safe and trouble proof apparatus.

Second—Simplicity of adjustment and use.

Third—An apparatus that permits of treating several patients in a chamber or home and also another type with which an individual treatment can be given—both to be portable.

Fourth—Economy of use.

Fifth—Low cost and long life.

1. The personnel of the National Research Laboratories has had long experience with chlorine gas, and while the dangers connected therewith have been greatly magnified there can be unpleasant circumstances connected with its application that are guarded against in the Gilchrist Chlorine Ejector. *It is not necessary to have a cylinder of gas in the presence of the patient.*

2. We have stripped the apparatus of all unnecessary appurtenances, insuring a minimum of effort in its use and the least possible adjustment.

3. The physician will be called upon to use one type for treatment in a chamber or home when the individual type would not be suitable, for instance in

treating very small children. *Many physicians due to lack of space cannot have a chamber connected with their offices.* Therefore we have developed and placed on the market the Individual Type.

4. There are features connected with either type that permit of its use anywhere, and the greater quantity of pure chlorine gas in our cylinders insures a very low upkeep cost to the physician.

5. *The initial cost of the Gilchrist Chlorine Ejector is positively the lowest obtainable.* Simplicity of construction means low manufacturing cost. Still there has been no skimping that would detract from its efficiency, safety or appearance.

The Gilchrist method of chlorine treatment and the Gilchrist Chlorine Ejector were devised by Lt. Col. Harry L. Gilchrist of the Medical Corps of the U. S. Army.



Individual Type \$20

With Two Cylinders \$50

Both Types with Two Cylinders \$75

Individual Type Chlorine Ejector is made of crystal glass and polished hard rubber with *no metal parts to corrode*. Attached is the inhaler made of non-corrosive parts. The carrying case is of mahogany finished wood.

THE Individual Type of Gilchrist Chlorine Ejector designed especially for physicians who find it impractical to install a chlorine chamber in their offices and also for the additional advantage enabling them to furnish to their patient an ejector that may be taken to the home or office.

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With the outlet apparatus adjusted (suspended about the neck, and resting just below the nose of patient) the patient opens the control valve, thus permitting the gas to seep out over the period of one hour and the gas mixing with the air gives just the concentration required.

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Write for our book on "The History of Chlorine Gas as a Therapeutic Agent in Certain Respiratory Diseases", for it will be an interesting and valuable adjunct to your medical library. It contains graphs and charts of results obtained covering over 900 cases treated by the Gilchrist Method.

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SIMPLE
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Improved Chamber Type \$25

With Two Cylinders \$55

Both Types with Two Cylinders \$75

The improved chamber type made of crystal glass and polished hard rubber with *no metal parts to corrode*. The carrying case is of mahogany finished wood with compartments for two cylinders.

THIS type is for use in a physician's gas chamber, the hospital, or it may be transported to a home and a treatment given there, when the individual type is not suitable, (such as in the treatment of small children for whooping cough.)

The physician or his assistant can easily turn into this ejector 600 cubic centimeters of pure chlorine gas, tighten a valve and the ejector is ready for use or transportation.

Upon entering the chlorine chamber or room in the home, the desired initial concentration is turned on, depending upon the cubical contents of the room.

Now by a simple adjustment the device is set to allow, for instance a seepage of 400 c.c. during one hour which automatically maintains the required concentration, to take care of absorption of gas by the patients or furnishings of the room.

A chart accompanying the ejector gives required initial concentration for any sized room and required amount of seepage.

The chamber ejector has a capacity sufficient for the largest room likely to be used. Lesser amounts of gas can be employed as the occasion requires.

With this type it is not necessary to take a cylinder of the gas into the home or chamber. It has no complicated mechanism; is simple, safe and durable.

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temp. 96.2 rising in 4½ hrs. to 100.6; resp. 30; leucocyte count 15,600; 89% polynuclears, urine 1029, trace of albumin, occasional cast; blood culture negative; curettement 36 hrs. after admission. Improved for several days, after which there was a stormy course—death 12th day.

Dr. Garrison said that it had been his experience that if it is desired that the abortion should not proceed, scopolamin should not be administered. This drug with morphin always assisted the emptying of a uterus.

Dr. Thomas said that the experience of maternity hospitals in the East, and his personal observation, is that infected cases of attempted abortion should not be curetted. He detailed one case in which there was a most offensive odor and high fever, and under ergot and other medication the fetus and placenta were expelled after about five days and the patient made an uneventful recovery.

Dr. Smith concurred in what Dr. Thomas said and said further that an infected area as a rule should never be curetted.

Dr. Brown asked if remnants of decaying placenta were not good cultural material for bacteria that might be carried in by the instruments and if it were not extremely difficult to avoid infection during curettage in such cases; also said that he recalled two cases, one indirectly and one by

consultation, of retained placenta following normal delivery of the children. In one case the doctor waited and waited for about three days when the placenta was finally expelled without instrumental aid. The other physician after a short wait interceded and delivered the placenta by means of curettes or other instruments; so it was rumored. The woman who was not operated lived and the other died.

Dr. Smith said further that pyogenic or saprophytic bacteria might be carried into the uterus in a curettement and that the decayed placental remnants afforded a good cultural bed.

Dr. Watkins reported that the laboratory had recently found placental material in a uterine discharge and the last pregnancy had been eight months previously.

Dr. Little said that in streptococcal infection he would advise against curetting but in milder infection it may be advisable to curette.

Dr. Vivian said that instrumentation in infected cases is an acutely dangerous procedure. He detailed a patient that had inserted a hat pin in her uterus to produce abortion. When he first saw her she had a high temperature and was acutely ill, with every evidence of sepsis. The uterus was not attempting to empty itself. She

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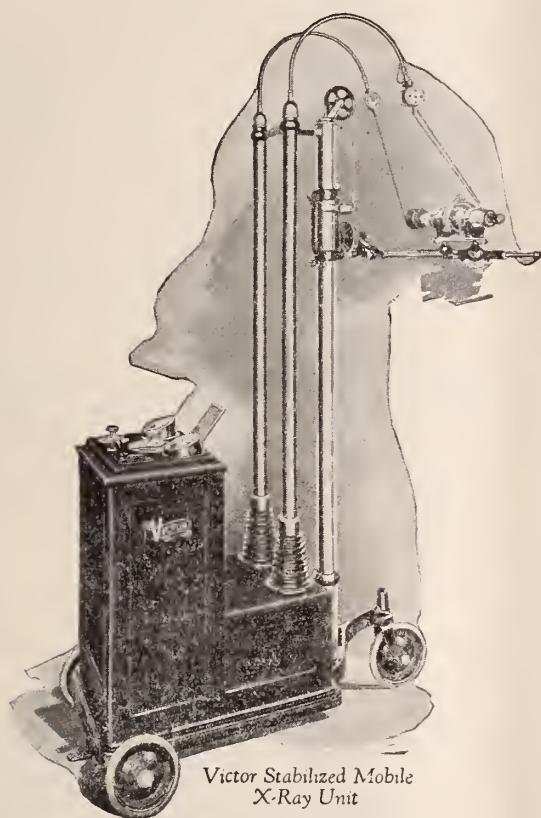
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was given mercuriochrome intravenously and finally after the fourth to fifth day of severe illness, the uterus emptied itself; and the patient made a complete recovery.

Dr. Goodrich called Dr. Watkins to the chair at this point as he was compelled to leave the meeting.

The records of Case No. 3170 were read in detail by the secretary.

An abstract of the records follows:

Male, age 79, with "double inguinal hernia, hypertension arteriosclerosis, and tenderness over entire abdomen." On admission, temp. 98.6, pulse 78 and resp. 20. Urine involuntary; bedside notes say "complained of pain in abdomen."

Temp. on 2nd day rose to 102 (axillary) pulse 118 and resp. 30. Death on 3rd day. Diagnosis—Acute gastro-enteritis.

Dr. Vivian said that he had seen this man in consultation and that it was his opinion that this man had had during the first night in the hospital a cerebral hemorrhage.

Dr. Watkins said that it was his opinion that the physician in this case would doubtless change the cause of death as it now reads if his attention were but called to the matter.

Case No. 3203 was next on the program; the record was voluminous, being that of a female, age 38 years; diagnosis pulmonary tuberculosis, treated by pneumothorax; in hospital 272 days.

Dr. Vivian, physician in charge of this case, said that this was a case of advanced pulmonary phthisis treated with pneumothorax and there was nothing of special interest concerning the case.

The secretary read the records of Case No. 3242, an abstract of which follows:

Graduate Nurse. Age 54, with history of two previous "heart attacks" relieved by digitalis, and rest. The patient was so ill that a detail history was impossible. Present attack began two weeks before; under care of a chiropractor. Chief complaint was breathlessness of asthmatic type especially on slight exertion. After a few days a pain in cardiac area began and became very severe; opiate necessary; physical findings: large heart, asthmatic rales; purulent sputum, slight edema. Blood pressure low at first and rising after treatment. Urine 1030. Albumin .1%. Blood normal. Death was sudden with a violent scream of pain—a grasp at the heart.

Dr. Brown then discussed cardiac infarct as Dr. Werley presented the subject to the Southwestern Medical Association. He read from Dr. Werley's paper as follows:

Cardiac infarct is only considered rare because the diagnosis is so often missed. In a little over one hundred autopsies seen in El Paso during the last year and a half, there were seven cases of cardiac infarct, fibrous myocarditis or cardiac aneurism. If the heart could have been examined in every case of sudden death from so-called acute "heart failure," "ptomaine poisoning," "acute indigestion," or "stroke," I am sure the percentage would have been much greater.

Cardiac infarct does not differ from infarct in other parts of the body except as modified by dif-

ferences in tissue structure and function. Cardiac infarct caused by embolism is a very rare event. Sclerosis with atheromatous degeneration and calcification are found in practically every case. The same causes are at work as in arteriosclerosis in other organs of the body. Just why a clot will form in one calcified artery and not in another equally damaged we do not know.

The symptoms of cardiac infarct are just what we might expect. They are: 1. Those due to the local lesion in the heart.

From the infarct with its congestion, edema, damaged muscle, necrosis, infiltration of polymorphonuclear leucocytes and pericardial palstic exudate, we have (a) fever, (b) Leucocytosis with high poly count, (c) pain, and (d) pericardial rub.

2. Those due to heart failure.

The sudden crippling of the heart gives rise to (a) pulmonary edema and congestion, sometimes hemoptysis, (b) dyspnea, (c) vomiting, sometimes gastric hemorrhage, (d) swollen liver, (e) cyanosis (f) dilation of the heart (g) teeble or absent sounds, (h) fall of blood pressure, (i) restlessness, (j) vasomotor signs such as flushing or paling, (k) finally, if the lesion is bad enough, shock, collapse and death.

If one will remember these facts diagnosis will not be difficult. The surgical mind may confuse it with acute pancreatitis, ruptured duodenal ulcer or gall bladder.

Dr. Brown said that since hearing Dr. Werley's paper he had seen two cases which he believed were suffering from coronary artery thrombosis. The case under discussion had had two previous attacks of cardiac distress in which digitalis and rest relieved her. These attacks may have been



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The suggested modification furnishes nutrition in keeping with the character and amount of food element best adapted to the particular demands of infants in an extreme state of emaciation and serves well as a starting point in attempting to meet the nutritive requirements of these undernourished babies.

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due to small thrombi in the coronary arteries. The important features in this case pointing to thrombosis were: a large heart failing to respond to digitalization; prolonged severe pain in the heart region calling for opiates to relieve; the sudden death with patient shrieking out and grasping at heart region; the face first pale and immediately followed with flushing; first red changing rapidly to purple and then blue.

Dr. Drane discussed the case emphasizing the two previous cardiac attacks which the patient had had.

Dr. McIntyre said he had seen the woman six years ago, at which time she had marked edema even pulmonary, high blood pressure, and had to stop work for a time, but that she could not be prevailed upon to take proper treatment.

Dr. Mills said that he felt that it was necessary to distinguish between cardiac infarct and coronary sclerosis; that thrombosis does not occur without infection. Causes of sudden death were often gummatous thickening of the coronary wall; a syphilitic endarteritis. The gumma encroaches upon the vessel and gradually breaks down and occludes the vessels.

Dr. Vivian said that in Dr. Cabot's Case Histories there were cases of sudden death from a ball-valve clot of right auricle. He thinks this may explain the cause of death in this case.

Dr. Felch, County Health Officer, reported that he had had to do many autopsies in the course of his official duties and that any of the physicians were welcome to attend them.

The remainder of the program had to be deferred for lack of time.

Adjourned.

DR. ORVILLE HARRY BROWN,
Secretary.

At the December meeting of the Staff of St. Mary's Hospital, Roswell, New Mexico, Dr. H. A. Ingalls was elected Chairman and Dr. Chas. F. Beeson, Secretary. The retiring Secretary, Dr. C. M. Yater, asked to be relieved of the further duties of the office, as his duties as Secretary of the New Mexico Medical Society claim most of his spare time.

Dr. A. E. Fletcher, a retired physician very popular with the regular profession in Roswell, died suddenly on the morning of December the 26th, supposedly from uremia, and was buried at Roswell on the evening of the 31st. Dr. Fletcher, while not in practice, always took an earnest interest in medical matters and will be missed by the Roswell profession.

CHAVES COUNTY (NEW MEXICO) MEDICAL SOCIETY

The Chaves County Medical Society met in regular session at the usual hour, December 31st, and, after the preliminary proceedings, had the pleasure of listening to a good paper by one of the members, Dr. J. E. McClane, on the subject "Bronchopneumonia in Children." Dr. McClane seemed to be conversant with his subject and brought out some excellent points in the management of these cases.

After the discussion was closed the society went into business session, and elected the following officers for the year 1925:
President - - Dr. C. F. Beeson, Roswell
Vice-Pres. - - Dr. J. E. McClane, Roswell
Sec.-Treas. - - Dr. C. M. Yater, Roswell

Board of Censors

One year term - - - Dr. W. C. Buchly
Two years - - - - - Dr. E. M. Fisher
Three years - - - - - Dr. W. T. Joyner

Delegates to State Society

Dr. W. T. Joyner Dr. H. S. Ingalls
Dr. D. D. Swearingen

On the sixth of January the society will hold its annual business meeting and banquet, and the Eddy County Medical Society is invited and expected to meet with us at that time.

C. M. YATER, Secretary.



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MEMBERS AT LARGE, New Mexico Medical Society

Annual dues for 1925 are now due and payable. The dues are \$5.00. You will confer a favor on me and relieve me of considerable work if you will sit down right now and send me your check for \$5.00.

This is addressed to those members only of the New Mexico Medical Society who are not members of any county society. County society members must pay their dues to the secretary of their county society, and should do so at once, as all reports are supposed to be in my hands not later than April the first.

Trusting I may be relieved of the necessity of writing any one individually on this subject, and looking forward to the present year being the very best the Society has ever had, I am

Most Cordially,
C. M. YATER, Secretary,
Roswell, N. M.

BERNALILLO COUNTY (NEW MEXICO) MEDICAL SOCIETY

On Wednesday, December the third, the Bernalillo County Medical Society elected the following officers:

President - - - - Dr. J. A. Reidy
First Vice President - - Dr. C. C. Davis
Second Vice Pres. - Dr. P. G. Cornish, Jr.
Secretary-Treasurer - Dr. L. B. Cohenour
Censors: One for three years, Dr. P. G.

Cornish, Sr. One for one year, Dr. W. G. Hope.

Delegates: Three for one year, Drs. L. B. Cohenour, W. A. Gekler, D. C. Dodds.
Three for two years, Drs. J. R. Scott, A. H. Vogt, E. E. Royer.

ST. JOSEPH'S HOSPITAL STAFF (Phoenix) DECEMBER MEETING

The regular monthly meeting of St. Joseph's Hospital (Phoenix) Staff was held Saturday, December 20th, in the lecture room of the hospital. Twenty members of the staff were in attendance, with three members of the hospital organization.

The chairman of the staff, Dr. Wylie, stated that the executive committee had decided to present cases for study in a manner which would call forth constructive criticism on a purely impartial basis. They had, therefore, selected three cases of a diversified pathology, and would present a description of them up to the point where the physician or surgeon had to decide on treatment, and would then ask for discussion as to what should be done from that point on, with criticism of the recorded

history or diagnosis, if this seemed indicated.

CASE 1.

This was a case of mastoiditis in a Mexican boy, age 13. Seen November 5th, at which time he gave an incomplete history of chill four days before, with pain in left ear and slight discharge. This history of chill was later found to be incorrect.

Examination showed a poorly nourished boy in great pain, the left ear showing small perforation in post-superior quadrant of membrane, which perforation was enlarged releasing a small amount of pulsating serous discharge. There was tenderness over mastoid, very marked in region of tip and emissary vein. Sent for x-ray, with following report:

"Poorly developed cells, fairly dense in outline on both sides. On the left, there is variation in density just behind and below the canal resembling an area of bone destruction in the mastoid process. Regarding this as bone disease, it is probable an acute infection. The lateral sinus comes well forward, being less than one half inch from the posterior wall of bony canal."

Diagnosis of acute fulminating mastoiditis, and sent to hospital. White count was 17,000, 84% polys; next day, count 14,400, 83% polys. Smears from canal showed staphylococci and pneumococci.

Operated Nov. 6th. Cortex thick, mastoid bone small and flat, eburnation extensive around auditory canal; pus and granulation tissue in tip cells; lateral sinus very close to external canal wall, a small area of sinus being exposed; perisinus abscess near knee of sinus; antrum was entered through dense bone, revealing a small amount of granulation tissue and pus in antrum; lower end of sinus covered with what appeared to be healthy granulation tissue. Mastoid was cleaned of all necrotic bone and operation completed in usual manner.

On Nov. 7th, temp. was 99.4, pulse 60; was given mercurochrome and temp. went to 105, coming down gradually nearly to normal. On Nov. 8th, had pain in head, was drowsy and listless; dressing was removed, finding outer wound dry and clean. For three days, temp. stayed around 102.5, with patient drowsy, and pulse 60 to 70. On the 11th, had a chill followed by skyrocket temperature to 105.8; white count 13,600, 88% polys. Much pain in left side of head; neck rigid and tender; Kernig, Babinsky and ankle clonus all positive; pain in ear running back to occiput. Spinal fluid showed increased pressure, 15 cells, no organisms on smear or culture, no excess globulin.

Dr. H. T. Bailey, in opening discussion, said that in a poorly nourished patient with mastoiditis, infection is likely to go through the cells, traversing the bone by the blood vessel route. Also, there may have been some small cells left, with a small amount of pus, and this have been carried back to form an extra-dural abscess. Tenderness down the side of the neck looks like sinus infection; the veins running out from the mastoid process might easily infect the sinus. Some men have stated that total white counts do not mean much, but if you have a high polynuclear count, that points to osseous necrosis. The blood culture was negative; this usually points away from sinus thrombosis; however there might be a clot in the sinus which would wall off the infected part of the thrombus from the general blood stream, so that you can have sinus thrombosis without positive blood culture. Believes he has sinus thrombosis and extra-dural abscess at this time. Will not discuss the operative procedure indicated.

So far as history goes, this child did not have ear ache at any time preceding mastoid operation. X-ray speaks of eburnation of bone; if there had been infection, this might occur, and would prevent, to a considerable extent, the making of a positive diagnosis from the x-ray.

Dr. J. J. McLoone, who was the surgeon in charge, stated that Dr. Bailey came pretty close to diagnosing the conditions present. Case was atypical; boy came to office with history of ear-ache and discharge for four days. Weak point in the case is the lack of an accurate history, on account of boy not speaking English and there being no adequate interpreter. When the drum was opened and there was so little discharge, was doubtful about there being a mastoiditis, until after the x-ray report. At operation the significant thing was that the greater part of the involvement was away from the middle ear, posterior to the antrum; this is entirely possible, because the most virulent infection follows the gutter cells around to the posterior part of the mastoid process. Lateral sinus was very far forward which made the mastoid infection very likely to involve the sinus. When the temperature went up on the 11th, I thought of the granulations against the lateral sinus. Drs. Schwartz and Mills saw the patient, and agreed that it was a lateral sinus thrombosis with meningeal involvement. He was operated at 11 p. m. Clot was found at the knee and at sigmoid portion of sinus; lateral sinus was exposed over a large area; after clots were removed there was free bleeding; posterior to the sinus there was free pus, (extradural abscess) and considerable necrotic bone. The next day there was some tenderness over the sterno-cleido-mastoid muscle, which is a symptom of considerable importance, though its significance has been minimized by some. At no time was the blood culture positive; this should not be waited for, in fact nothing should be waited for in such cases. We did not even wait to get the consent of the boy's parents in this case. On the following day, we resected about one and a half inches of the internal jugular vein, which was filled with clot. The day following the sinus operation had another chill and another chill after the internal jugular operation. After that, the symptoms improved and he went on to a good recovery, and is now ready to be discharged. (Patient was shown.)

Sinus thrombosis is not necessarily a bacteremia; in this patient comparatively sterile material was being thrown into the circulation. The question naturally arises as to whether the history was wrong and the patient really had been having trouble about which we knew nothing. It illustrates the necessity for an accurate history. If there had been history of chill before operation, would have explored the sinus, and accurate inquiry into the history probably would have revealed that there was a chill. Regarding the question of meningitis, believes that there was an actual localized involvement of the meninges.

CASE 2.

Man, age 30, brought to hospital immediately after injury. Was riding on a railway motor car, which ran into an open switch and patient was thrown some distance, lighting on his head and shoulders.

There were many lacerations about the face and head, with some front teeth gone and apparently complete paralysis of the lower portion of body.

Patient was anesthetized and wounds about the head repaired, and x-ray of spine called for to ascertain extent of injuries to the vertebrae. X-ray report was as follows:

Most serious lesion is in the twelfth dorsal vertebra, which is fractured and rotated backward as well as being dislocated slightly toward the left. There are fractures of the transverse processes of the "11th, second and third lumbar vertebrae on the left side. There is also fracture of the sixth rib on the left side near the angle, with loose splinters, and pneumothorax of the left lung."

Discussion of the indications in such a case as this, was opened by Dr. G. M. Brockway. He stated that most of the serious accidents on the railways for the past few years in this section have come from the motor cars which run on the rails; next to this the greatest menace to the employees on the trains come from the autos on the highways running into the trains. One thing not mentioned in the history was the extensive scalp injury, this patient being practically scalped without injury to the bone. There was a bulging mass in the lower dorsal region and Dr. Wylie thought he could feel crepitation. He was almost totally paralyzed from the waist down, there was slight movement of toes on stimulating skin of left foot; no sensation of heat or cold below the level of hips. As you ascended toward the navel, he felt sensation. Question arises as to what the injury might be, before x-ray was made, because some cases have to be decided without x-ray. Was it hemorrhage, severance of the cord or compression of the cord? If hemorrhage, where would it be? Pressure on the anterior part of the cord would produce motor paralysis; destruction or pressure on the posterior roots, if slight would produce pain, or if greater, complete anesthesia. Hemorrhage into the substance of cord would be very unusual from such an injury. There would hardly be either extradural or intradural hemorrhage or hemorrhage into the cord substance sufficient to produce complete paralysis. The conclusion naturally arrived at was that there was either almost complete blocking of the cord by pressure from displaced bones, or else a severance of the cord. X-ray films showed the lesion at the 12th dorsal. The cord does not stop at the 12th dorsal, but comes to the lower margin of the first lumbar. Leaves discussion of the indications for treatment to others.

Dr. Smith stated that whatever you do for these injuries you wish you had done something else. The first thing to think of is whether these vertebrae can be reduced by an extension process. Would think a good while before doing laminectomy. Have sweat blood over this sort of case several times and feels loth to venture a suggestion without more than a paper description to go on.

Dr. Sweek said that he saw this patient in consultation and agreed that laminectomy was indicated, and then assisted in the operation. The cord varies somewhat in its termination; in this case it ended about the middle of twelfth thoracic the extreme tip of the cord being injured, the balance of injury being to the cauda. There was marked edema and evidence of injury to tip of cord.

Dr. Brockway stated that three hours after the operation plantar reflexes were present in both feet but 24 hours later, the reflexes had disappeared.

Dr. Watkins called attention to the necessity of examination of the entire dorsal and lumbar spine in such injuries. Request was for the dorsal spine, but following the usual practice, the entire spine was rayed and injuries throughout the lumbar region found. Stated further that he had been frequently impressed with the lack of care in

handling spinal injuries. This patient, from the time he was picked up off the ground, was known to have a spinal injury. Preoperative record made at time the scalp was repaired, said "broken back." Yet he was picked up, laid down again on ambulance cart, picked up again and transferred to hospital cart, picked up and laid on operating table, picked up and laid down on cart again, picked up and laid in bed, picked up and put on cart for transfer to x-ray room picked up and transferred to x-ray table, turned on his side for lateral x-ray, picked up and put on cart, picked up and put to bed, picked up and put on cart for transfer to operating room, turned on his face for laminectomy. Operation showed three laminae fractured, with sharp pieces of bone, and displaced vertebra, mobilized by the injury, all grinding against and into the cord at every manipulation which the patient was subject to. The paralysis prevented the pain which would have caused the patient to object to these movements and would have indicated when they were doing damage. Often thought that if he should suffer a broken back from an auto wreck on the desert, he would be turned gently on his belly, and the surgeon would have to bring operating outfit to that spot and perform the laminectomy then and there. The sooner it is done the better, but the least handling of the patient there is, the less damage to the cord there will be found at operation. The chances are that in every laminectomy done for fractured spine the injury has been multiplied tenfold by the time the patient is laid under the surgeon's knife.

In this connection, Dr. Smith spoke of Dr. Farr's apparatus for handling and moving patients from place to place.

Dr. Wylie stated that he operated this case, with the assistance of Drs. Brockway and Sweek; that Dr. Sweek perhaps may be right about the injury being half an inch above the cauda, but the lower edge of the eleventh vertebra is pretty high for the end of the cord. There was in this case certainly a partial severance of the cord, but the astonishing thing was that the cord could be pinned between the upper back edge of the vertebra below and the lamina above and be partially severed without visible hemorrhage.

Question that had to be decided was what to do in this case. In nearly fifty years of practice in accidental surgery have seen many of these cases and agrees that it does not make any difference what is done, you will wish you had done different. All the laminectomies that have been seen have died and it looks as if this one will die. Likewise all the cases of broken back that were not operated have died. Where there is complete severance of the cord, or whether you have complete paralysis from hemorrhage into the cord, laminectomy is useless. But without laminectomy, it is absolutely impossible to tell what causes the paralysis; you do not know whether it is hemorrhage or not; you cannot possibly tell whether your paralysis is due to pressure without severance. If it is due to pressure and you do a laminectomy you are going to save your patient; if you do not do a laminectomy, in all human probability the man will die. In some cases we can tell that the cord is not severed but the symptoms are due to hemorrhage, either around or into the cord; this is evidenced by the fact that immediately after the injury, motion or feeling was present in some part, and shortly thereafter paralysis develops. Think in the future will give every man with broken spine the benefit of the doubt and do laminectomy. No harm can be done and there is the possibility of saving life.

Dr. Brockway said that he could see no reason for not decompressing the cord, and laminectomy was the only way to do this.

CASE 3.

(Illustrating Management of Diabetes.)

Married woman, age 36, husband and one child living. Entered hospital Nov. 10th in coma. Husband gave history of patient having been diabetic for three years; of being treated in "diabetic hospital" in California until last August. Since then has been on diet with insulin self administered. Four days before entrance complained of sore throat, vomiting and diarrhea; on fourth day went into coma and was brought to hospital.

Physical examination showed both lung bases full of coarse bubbling rales, extending upward back and front nearly to apices. Abdomen distended with gas; dulness in both flanks shifting on change in position; otherwise negative. Catheterized urine had sp. gr. 1020, heavy trace of albumen, sugar 1.7%; trace of acetone; many hyl. and gran. casts. Later specimens showed some pus cells in urine. White count 30,300, 92% polys. Blood sugar 1.04%.

Dr. E. R. Charvoz was asked to open discussion. He stated that this was evidently a diabetic who was going along all right on insulin, when along came an infection which upset the balance and sent her into coma.

Would put patient to bed, get her warm, lavage stomach and colon with soda water, leaving some water in, with order for routine enema every six hours. Would catheterize patient at once and have nurse see if patient could void; have urine examined for sugar, acetone and diacetic acid. Catheterize every three hours if unable to void. If sure that this is diabetic coma, would give thirty units of insulin and at same time about 150 grams of orange juice; repeat in three hours and then every six hours until patient comes out of coma. If she could not swallow the orange juice would give dextrose by rectum,—15 grams in water, using this as routine enema every three hours. If this seemed to fail, would take changes on dextrose and insulin intravenously, but would have to be pretty risky to justify this. Would leave a so-called sugar cushion, giving enough insulin to take care of the acetone and leave some sugar in the urine and the blood sugar above normal during the course of the infection which she seems to have.

Dr. Dysart agreed that in the treatment of coma, would advise that the insulin be given in amounts somewhat less than necessary to rid the blood of excess sugar.

Dr. C. S. Vivian gave some data about the treatment of this case which presented some difficulties. Dextrose was given intravenously throughout the first and second days, as patient could not swallow; 130 units of insulin was given during first 24 hours, with water intravenously, by rectum and under the skin. Patient became rational on second day and thereafter it became a question of adjusting the carbohydrate diet and insulin. Patient had a very high threshold for sugar, the urine becoming sugar-free while the blood sugar was still very high. In the final adjustment it was necessary to leave the blood sugar around .25%, at which point the urine was practically sugar-free. The urine can be kept sugar-free provided you do not bring the blood sugar down too far; to determine this point, blood sugar determinations are required, with a knowledge of the kidney threshold for sugar. Effort was made to find out whether there was some mechanical explanation for the high kidney threshold, which is sometimes the case; she had a ureteral kink

and some pyelitis. (The daily summary of this patient's treatment for the first week was thrown on the screen by lantern slides.)

Dr. Watkins discussed the importance and significance of blood sugar determinations, stating that this analysis is coming to be one of the major laboratory procedures. The fasting normal person will have about 100 mgms. of sugar per 100 cc. of blood (limits 90 and 120 mgms.). After eating, and especially after taking carbohydrates, there is a temporary rise in blood sugar, lasting an hour or two, then coming back to normal. If the person is unable to metabolize this sugar, the blood sugar content will not return promptly to normal, which fact has led to the "sugar tolerance test" in which the person is fed a measured amount of glucose and the blood tested at intervals of one, two and three hours,—sometimes longer,—or its sugar content. Any person who shows sugar in the blood to the amount of 160 mgms. after a twelve-hour fast should be regarded as a diabetic, whether he has any sugar in the urine or not. In the normal person, when the concentration of sugar in the blood reaches a certain point, the sugar passes through the kidneys and appears in the urine. This point of concentration at which the sugar passes into the urine is called the "kidney threshold." In the normal individual this point of concentration is between 170 and 180 mgms. per 100 c. c. of blood. The renal threshold is a variable factor and cannot be depended on. Some people will leak sugar into the urine at 100 mgms., while others will hold sugar in the blood up to 300 mgms. before any shows in the urine. Therefore, sugar in the urine cannot be depended on to show how carbohydrate is being metabolized, except as a very rough estimate. Nephritis will raise the kidney threshold, as the case just studied illustrates.

Surgeons should realize the importance of determining the blood factors which indicate whether the patients are good operative risks or not; blood sugar is one of the simplest and most significant of these tests. It is not what is being excreted by the patient in urine, sweat or feces that will cause them to succumb after operation, but what is held in the blood. Renal diabetics (those who leak sugar into the urine at a low concentration) are much better surgical risks than are those who have a high blood sugar and none in the urine. The best way to prevent postoperative acidosis,—probably the most frequent cause of postoperative disaster,—is to know which patient is going to have acidosis. The blood sugar on a fasting stomach, or the sugar tolerance test is one of the best methods of determining this.

In this connection, Dr. Greer was asked to present a brief description of a case recently in the hospital, in which some of these points are applicable.

Dr. J. M. Greer (Mesa) stated that the patient is an old lady who, at the time he saw her in consultation, had jaundice, with a large movable abdominal tumor in the epigastric region, with high urine sugar (found by routine test in hospital), and a high blood sugar (.62%). His study of the case makes him think that there may be a pancreatic malignancy, with involvement of the common duct and intermittent obstruction of this duct. The x-ray examination seems to show that the tumor is the gall-bladder, and the tumor is probably a secondary affair, caused by duct obstruction. The question has come up whether to do an exploratory laparotomy at once, or whether to treat her by diet and insulin first.

Dr. B. B. Moer (Tempe), physician in the

above case, stated that the patient called at the office about six weeks ago complaining of intense pain in the stomach; had much distention, when this subsided, could make out the tumor mass a little to the right of midline; in a few days developed jaundice, and was sent to hospital for x-ray, to rule out malignancy of stomach, or find it if present. Her mother died of cancer of stomach. Patient had never suffered like this before. Does not seem cachectic; pulse, temperature and respiration normal.

Dr. Willard Smith stated that if the diagnosis is malignant pancreas, it would be kinder to let the patient die in peace rather in pieces, but he could see no reason for not doing an exploratory laparotomy to satisfy surgical curiosity.

Dr. C. S. Vivian said that the question is whether this patient is likely to go into diabetic coma and die. If the patient were younger, exploratory laparotomy would be indicated. And, as it is, we do not need to fear diabetic coma, because we have means for bringing her out of this. The condition of the circulation is the main thing. The pancreas is concerned with the metabolism of other things besides sugar; if she is on a mixed diet and has a malignant pancreas, she should have incomplete digestion of fats and proteins, which stool examination will show. Would suggest determining the tolerance for carbohydrate, the ability to burn carbohydrate, either by fasting and then building up, or by starting out on a diet and then cutting down the blood sugar with insulin. If she is a severe diabetic and only able to burn a limited amount of carbohydrate with a low tolerance, would hesitate to operate. On the other hand, she may be a mild diabetic, with a tolerance around 80 or 90 grams of carbohydrate, as most diabetics are. A high renal threshold would account for the blood and urine findings. Does not agree that patients with blood sugar of 180 mgms. are always diabetics; this can occur in prostatic disease, with mechanical pressure back on the kidney. Had a patient with blood sugar of 600 mgms. without sugar in urine and without any signs of diabetes.

Dr. O. H. Brown stated that Allen bases his treatment a great deal on the condition of the patient. If the patient is thin and has been on a meagre diet, he gives much smaller doses of insulin. He withdraws the fat at once and makes the point to use moderate doses of soda (10 to 40 grams) in 24 hours. He cautions against the liberal use of soda because of alkalosis. He emphasizes particularly the importance of getting fluids into the patient, fruit juices, water and carbohydrates. The condition of the patient governs the future treatment.

The secretary read a proposed amendment to the constitution which would provide that the executive committee be composed of the chairman, the secretary, the hospital pathologist and four members of the staff elected at the annual meeting, these four members to be distributed as far as practicable among the various branches of medical practice. It was announced that the next meeting would be the annual meeting, at which time staff officers would be elected for the year 1925.

W. WARNER WATKINS,
Secretary.

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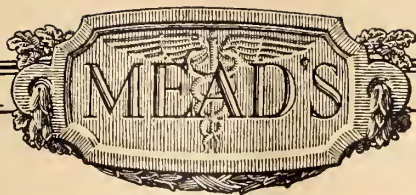
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SOUTHWESTERN MEDICINE

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EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
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THE PROGNOSTIC INFLUENCE OF SURGERY UPON THE SANATORIUM TUBERCULOUS PATIENT

WILSON RUFFIN ABBOTT, M. D.

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FORT BAYARD, NEW MEXICO

and

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Chief of Surgical Service U. S. Veterans' Hospital, No. 55

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Read before the Tenth Annual Session of the Medical and Surgical Association of the Southwest, held in Phoenix, Nov. 6 to 8, 1924. Published by Permission of the Director, U. S. Veterans' Bureau, Washington, D. C.

The opinion entertained by a considerable number of able physicians and surgeons is that pulmonary tuberculosis, especially advanced active pulmonary tuberculosis, is a positive contraindication for major surgical procedures; and, indeed, we have known physicians to consent only under most persistent pressure to such minor procedures as dental extractions for the relief of an alveolar abscess or severe pyorrhea infections. Our experience convinces us that this opinion is not sustained by facts, and most surgical operations may be performed on the tuberculous under proper conditions without undue hazard, if proper consideration is given to the following factors, viz: (1) selection; (2) surgical judgment; (3) anesthetic; (4) surgical skill; (5) environment; (6) post-operative care. If these six conditions are complied with, improvement as pertains to the tuberculous and surgical disabilities is to be expected.

All surgical procedures in the presence of a tuberculous infection warrant profound and earnest consideration before approving. Granting that environment and post-operative care are satisfactory, decision should rest upon one's mental reaction to the questions: (a) will the proposed operation enable the patient to overcome his disability, or afford sufficient relief to warrant its undertaking, and (b) does the operator pos-

sess the requisite judgment; for as Yount states, operations upon the tuberculous "require the most scientific exactitude with highest surgical skill." We take it that "scientific exactitude" implies sound surgical judgment.

The extent to which other complicating conditions are influencing the course of pulmonary tuberculosis is not always easily determined, altho of the utmost consequence. This is especially true of abdominal complications. Furthermore, it is obvious that prognosis is proportionate to the gravity of the complications, and surgery is justified, if indicated, at such times as medical therapy has not proved satisfactory.

The basis of this paper is a series of cases operated on during the past two years at the U. S. Veterans' Hospital No. 55, Fort Bayard, New Mexico. We have not included the specialties of the eye, nose, ear and throat. These cases have not been selected and include all that have been subjected to operative measures and who have gone thru sufficient time to permit of period study. In all tuberculosis existed. However, in order that our observations might be more thorough, the following departure from our routine monthly physical examination was established, to-wit: two weeks following the operation, and every

two weeks thereafter, if his condition permitted, the patient was given a thorough physical examination and all changes within the chest were noted and graphed. Daily clinical records of temperature, pulse, respiration and important symptoms were carried forward on his progress sheet. Weight charts were routine. These procedures continued over a period of three months, after which the bi-monthly examinations were discontinued and the monthly physicals resumed. We regret that some cases did not have bi-monthly examinations during the three months preceding operations; no case, however, was operated on that had not first been given thorough study and mature consideration. Medical therapy was maintained in all cases until its futility was demonstrated, the only exceptions being a few cases of inflammatory abdominal conditions, in which immediate operation was deemed imperative.

We have subjected 150 cases to study. These cases have been of major importance and pulmonary tuberculosis was still active. We have made a comparative study of a like number of active tuberculosis patients who were not operated on. It is to be noted in this comparison that in one group the severity of disability was due to pulmonary tuberculosis, while in the other group the pulmonary tuberculosis was complicated by a surgical condition which was doubtless influencing the progress, as pertains to the pulmonary lesion. Ideal comparisons would be to study a series of cases complicated by a surgical disability who were not operated on. This is obviously not possible.

That we have not done more thoracoplastic operations is due chiefly to the very satisfactory results obtained by artificial pneumothorax. We are not prepared to hold unreservedly with Alexander².

In these tabulations we have indicated the number and kind of operations entering into our series. The absence of cases of bone surgery from the list is significant. One might expect that in an institution devoted to the treatment of tuberculosis, and with the large patient body of Fort Bayard, that we would have a considerable number of tuberculous bone lesions. We have, but the results of properly administered heliotherapy and auxiliary measures are so eminently satisfactory that we seldom deem major surgery necessary.

Our experience coincides with Cooke³ and Lower and Jones⁴ in regard to the frequency of abdominal complications and the difficulties of their diagnosis. It will be noted that 76 per cent of our operations

were abdominal sections. In connection with this, it is worthy of note that pain in the abdominal right quadrant occurs with increasing frequency as the pulmonary disease advances. In the right upper quadrant, gastric and duodenal ulcer is, in our experience, the usual cause.

We may here interpolate the statement that we now have under study a series of intestinal lesions which have been subjected to medical or surgical treatment or both. We find that the frequency of gastric and duodenal ulcer exceeds our conjectures. We hope in the near future to make this the subject of a paper. The surgical results have been almost uniformly satisfactory.

It is a fact worthy of note that in five cases of thoracic aspirations we have had a mortality of 60%. These deaths have been due to the primary tuberculous toxemia and not to mixed infection which might have been incident to the operation. However, these cases were all undertaken because of doubt as to the justification of thoracotomy and because of the need for relief of cardiac and respiratory embarrassment. These cases came into the hospital and under observation late in their clinical course.

Appendicitis occupies by far the first position as a cause for abdominal section and comprises approximately 53% of the total number of cases. Pain in the lower right quadrant is most often due to this disease. Reflection, however, frequently gives birth to doubts which are often disconcerting. We know, for instance, the tendency of tuberculosis to localize in the ileocecal region. They are low grade inflammations, generally, but prone to acute exacerbations and may at such times give rise to symptoms closely simulating chronic appendicitis. A positive diagnosis often times is quite impossible, even by the most scientific and approved methods. We have had, for instance, cases of chronic tuberculous enteritis develop an acute appendicitis in which neither microscopic section nor guinea pig inoculation demonstrated the lesion to be tuberculous. Still another variation is the chronic tuberculous appendicitis exhibiting acute symptoms due to a non-tuberculous organism of a chronic diffused tuberculous peritonitis with localized symptoms indicating appendicitis. And finally, there is a clear-cut acute appendicitis of varying etiological factor,—the typical text-book variety. Regardless of the type, there will always be a period in which the decision for or against operation will sway in the balance, but eventually one must make the decision. We are agreed upon four cardinal points, which we believe

justify surgical intervention. They are: (1) pain which (a) seriously interferes with convalescence, or (b) requires the extended administration of narcotics; (2) perforation; (3) malnutrition amenable to surgical correction; (4) profound toxemia directly or indirectly attributed to malnutrition as the primal cause. The latter two are often closely related especially in those recurrent and acute exacerbations of chronic appendicitis in which we must frequently restrict the patient's diet. His nutrition, thereby, becomes materially reduced, his resistance lowered and toxemia appreciably increased. Such a condition extending over a considerable period of time may not only retard, but completely block recovery from his pulmonary tuberculosis. This is borne out conclusively, we believe, by reference to the appended tabulations. Efficient surgery in these cases is surely indicated.

Because pulmonary tuberculosis is a chronic disease characterized by periods of exacerbation and remission, one is apt to err in his conclusions concerning the merits of any therapeutic measures undertaken. For instance, if a treatment is instituted at or about the time of a recession of symptoms, the improvements will be attributed, in all probability, to the therapy and, per contra, if the time of its exhibition bears a similar relation to a period of exacerbation, this will likewise be attributed to the therapy. DeWitt⁵ has called attention to this fact. We believe, however, that in our series very few patients have suffered any serious setback from the operations, and by comparing a series in number and classification in which no operation was undertaken, a greater number of relapses or re-activations have developed in the cases not operated upon. Of course, ideal comparisons would require like surgical complications not operated upon, all other conditions being equal.

In the following tabulations, comparisons are made numerically and in kind. There were no serious complications other than surgical. All tuberculous classifications conform to the standard of the National Tuberculosis Association. Before proceeding to a review of the tabulations, it may be well to state the basis upon which the classification of the National Tuberculosis Association is formulated:

I. Minimal (formerly incipient)

Slight or no constitutional symptoms, including particularly gastric or intestinal disturbance, or rapid loss of weight; slight or no elevation of temperature or accelera-

tion of pulse at any time in the twenty-four hours.

Slight infiltration limited to the apex of one or both upper lobes, or a small part of one lobe.

II. Moderately Advanced.

No marked impairment of function, either local or constitutional. Localized infiltration, moderate in extent, with little or no evidence of cavity formation; or infiltration more extensive than under Minimal. No serious complications.

III. Advanced. (Formerly far advanced)

Marked impairment of function, local and constitutional. Marked infiltration (or fibrocaseous infiltration or fibrosis) of an entire lung; or disseminated area of beginning cavity formation; or serious complications. Classification will depend upon total involvement, regardless of activity. Evidence of involvement of entire right and upper part of left upper lobe marks a patient as advanced, even though present activity be limited to the left apex.

Tabulation 1.

Minimal, 8%.
Moderately advanced, 49%
Advanced, 43%

Classification: For both the operated and the non-operated cases.

Tabulation 2.

Appendectomy	82
Aspiration of chest	5
Gynecological	4
Resection of cecum and asc. colon.....	1
Breaking up of adhesions	3
Gynecological	4
Osteomyelitis	1
Removal of foreign body	1
Thoracotomy	4
Gastro-enterostomy	14
Gastro-duodenostomy	1
Treatment of fracture	3
Excision of palmar fascia	1
Inguinal adenitis	1
Orchidectomy	4
Exploratory	5
Thyroidectomy, partial	5
Hemorrhoidectomy	1
Incision and drainage of peri- rectal abscess.....	3
Cholecystectomy	4
Herniotomy	2
Resection of globus minor	1
Gastric resection-partial mid gastric....	2
Amputation of index finger T. B. osteomyelitis	1
Total	150

Tabulation 3.

According to Weight.

Comparisons made of weights at entrance and three months prior to operation.

	OPERATED	NOT OPERATED
Stationary	44%	34%
Increased	28%	36%
Lost	28%	30%

Comparisons made three months prior and three months post-operative.

	OPERATED	NOT OPERATED
Stationary	32%	29%
Increased	39%	40%
Lost	29%	31%

Comparisons three months prior and six months post-operative.

	OPERATED	NOT OPERATED
Stationary	18%	8%
Increased	50%	45%
Lost	32%	47%

Comparisons three months prior and one year post-operative.

	OPERATED	NOT OPERATED
Stationary	21%	50%
Increased	58%	50%
Lost	21%	

In the study of these comparisons, the following facts are to be noted. The percentage of weight loss is less in cases operated upon than in those not. The weight gain from entrance to three months post-operative, is less in the cases that were operated upon than in the non-operative cases. This is to be expected inasmuch as the loss of weight immediately preceding operation is usually considerable and rapid. Considerable of this loss, however, is regained during convalescence. This statement is sustained by the facts that if the comparison in weights be made from a period of three months prior to operation, the cases operated upon then will show a percent gain over those not operated upon, and indicates in a measure the serious handicap of the complication. The weight three months prior to operation compared with the weight six months after operation shows that a greater percentage are stationary and increased, while a smaller percentage have retrogressed in the operated cases than in the non-operated cases. However, the same cases compared at the end of one year after operation, show a greater percentage of both gain and loss in the operated cases, than in the cases not operated.

Tabulation 4.

According to temperatures.

Comparisons made three months prior to operation and three months post-operative.

	OPERATED	NOT OPERATED
Stationary	50%	28%
Improved	41%	60%
Retrogressed	9%	12%

Comparisons made three months prior to operation and six months post-operative.

	OPERATED	NOT OPERATED
Stationary	50%	38%
Improved	46%	36%
Retrogressed	4%	26%

Comparisons made three months prior to operation and one year post-operative.

	OPERATED	NOT OPERATED
Stationary	50%	35%
Improved	50%	38%
Retrogressed		27%

Comparing the surgical cases three months prior to operation and three months after operation with non-surgical cases in the same period of time, we find that the cases operated on have a smaller percentage of improvements and a smaller percentage of retrogression and a greater percentage of stationary than the non-operated cases.

The temperature range three months prior to operation compared to six months after operation shows a greater percentage of stationary and improved temperature and decidedly smaller percentage of retrogressions in the operated than in the non-operated cases.

The temperature range three months prior to operation compared to one year post-operative shows a decidedly higher percentage of stationary and improvements in the operated cases when compared to the non-operated cases. There were no retrogression in the operated cases at this time.

Tabulation 5.

According to pulse.

Comparisons made three months prior and three months post-operative.

	OPERATED	NOT OPERATED
Stationary	49%	32%
Improved	39%	40%
Retrogressed	12%	28%

Comparisons made three months prior to operation and six months post-operative.

	OPERATED	NOT OPERATED
Stationary	43%	31%
Improved	49%	41%
Retrogressed	8%	28%

Comparisons made three months prior to operation and one year post-operative.

	OPERATED	NOT OPERATED
Stationary	44%	26%
Improved	52%	37%
Retrogressed	4%	37%

The pulse is the most sensitive indicator we have of the course of the disease. It is more sensitive than the temperature and requires greater discernment in drawing inferences. This is known to most clinicians; time and place will not permit us to enter extensively into the reasons here. In brief, we may state that conditions other than tuberculosis doubtless have markedly influenced the rate. We would mention, incident to operation, mental excitement, anesthetic drug therapy, trauma due to prolonged operative manipulations, and ill understood neurological factors both preceding and following operation.

Tabulation 6—According to sputa.

	OPERATED	NOT OPERATED
Positive previous to operation	32%	58%
Negative previous to operation	68%	42%
Positive previous to operation that became negative after 3 months	8%	8%

Positive previous to operation that became negative 6 months after operation.....	6%	12%
Positive previous to operation that became negative 1 year after operation	5%	None
Negative previous to operation that became positive 3 months after operation.....	2%	2%
Negative previous to operation that became positive 6 months after operation	6%	6%
Negative previous to operation that became positive 1 year after operation	5%	None

Tabulation 7—Clinical condition.

Comparisons according to anatomical involvement, regarding pulmonary tuberculosis, but not sufficient to warrant a change in classification.

In this series, the cases were classified three months prior to operation, as follows:

Comparison made from entrance and three months prior to operation.

	OPERATED	NOT OPERATED
Stationary	79%	100%
Improved	12%	
Retrogressed	9%	

Comparisons made from three months prior to operation and three months post-operative.

	OPERATED	NOT OPERATED
Stationary	13%	74%
Improved	83%	20%
Retrogressed	4%	6%

Comparisons made three months prior to operation and six months post-operative.

	OPERATED	NOT OPERATIVE
Stationary	17%	50%
Improved	83%	36%
Retrogressed	0	14%

Comparisons made three months prior and one year post-operative.

	OPERATED	NOT OPERATED
Stationary	28%	44%
Improved	68%	22%
Retrogressed	4%	33%

Ninety per cent of the cases in this series which were retrogressing before operation, have shown clinical improvement since operation.

Fifty per cent of the cases in this series which were stationary before operation, have shown improvement since operation.

Over a corresponding period of time, patients who were not operated upon show:

Stationary	2%
Improvement	34%
Retrogressing	65%

Tabulation 8.—Present Status.

	OPERATED	NOT OPERATED
Stationary	9%	2%
Improved	53%	52%
Retrogressed	38%	46%

With reference to this tabulation it is to be noted: (1) The cases that have been stationary were of minimal classification. (2) Those cases that have shown improvement were of moderately advanced classification,

and (3) Those that have retrogressed were of advanced classification.

Of course, it would be absurd to conclude that the mere fact of a surgical operation was the sole cause for the improvement. An equally important factor is probably the enforced rest which the patient with a surgical disability is compelled to undergo, because of the increased discomfort and pain. This results in a mental and physical discipline which is so difficult to maintain in this particular type of patient. Attention is directed to the rapid loss of weight in the three months immediately prior to the time of operation. Up to this particular period the courses of the surgical and non-surgical cases are fairly parallel. The non-operative cases, however, continue their downward curve with acceleration on to the end of the clinical course herein recorded, whereas following the operation there is a progressive gain on the part of the cases operated upon, which continued to the end of the history of the cases.

Tabulation 9.

Increase in involvement in operated cases.

Two cases in a total of 150 went from Class 12 to Class 13, between three months and six months after operation. No other cases showed an increase that would warrant a change in classification and five cases out of 150 went from Class 12 to Class 13, in non-operative cases.

ANESTHETICS

Yount' states, "There are three schools concerning the anesthetic of choice; (1) those using ether or some combination of it, (2) those using nitrous oxide and oxygen, and (3) those using local, regional or special anesthetic." We believe that the anesthetic to be employed in every case of pulmonary tuberculosis is a matter of major consideration and that ether anesthesia is fraught with hazards both immediate and remote, not incident to nitrous oxide and oxygen. In this we are supported by such eminent surgeons as William Archibald, the elder Ochsner, George W. Crile, and Leonard Freeman. The experience of these men in operating upon the tuberculous is most extensive. There are many other surgeons equally prominent who hold with them. That distinguished anesthetist, Gwathmy' states that "tuberculous patients do better with some other anesthetic, and elderly people do not usually take ether well because of the degenerate state of their circulatory and respiratory systems." This last statement is particularly significant in cases of tuberculosis because we know both functional and structural degeneration always exists in pulmonary tuberculosis.

Sallman¹ is in full accord with all of the authorities quoted, and adds that in advanced pulmonary tuberculosis ether is especially contra-indicated. On the other side, however, we have Sauerbruch and A. Brunner² and their followers, on record as stating that ether is not only not harmful but because of its allergic action, decidedly beneficial. Riviere³, commenting on Sauerbruch, states that he has a post-operative mortality—immediate—of 2 per cent, and that 12 per cent died within the first three weeks, from aspiration pneumonia or tuberculosis of the better lung. We feel that his post-surgical mortality might be considerably reduced, even by an operator of his acknowledged supremacy, by the administration of a local anesthetic, as advised in the technic of Hedblom⁴, or the oxygen and nitrous oxide method of that same surgeon.

Ether was used in 24% of cases. It is rather disquieting to note that 17% of cases have shown retrogressions following the administration of ether. True, there was considerable handling of viscera, necessitated by a thorough exploration of the abdominal contents, and possibly trauma may have been a factor. We ask whether the complete relaxation produced by ether (compared to the moderate rigidity incident to nitrous oxide-oxygen anesthesia), whereby more thorough and possibly better surgery may be done, especially in the upper abdomen, is offset by the greater mortality and morbidity following the use of ether? We are inclined to the opinion that responsibility for the unhappy results rests in part upon our selection of ether as a general anesthetic.

Nitrous oxide was used in 6% of our cases. There were no retrogressions following these operations.

Novocain was used in 70% of our cases. All operations upon the thoracic region, thyroid gland and appendix, we performed under this analgesia. Of the cases we have operated under local analgesia 26% have shown retrogression. These results may be explained by the fact that all the cases which have shown retrogression were advanced active cases of pulmonary tuberculosis and retrogressing before operation.

Eleven of the cases operated upon were in active pulmonary hemorrhage at time of operation and operative treatment was withheld until their condition made surgical procedures imperative.

One case was in acute pneumonia, complicated by an acute suppurative appendicitis, yet this case made a wholly uneventful recovery both from his pneumonia and the

surgical condition, and has shown no retrogression.

Two cases having an idiosyncrasy to novocain were operated, one under ether and the second by pressure nerve block with normal saline solution with adrenalin, supplemented by a large dose of morphine.

DEATHS

(1) One case died in less than one hour following operation for intestinal perforation with general peritonitis. The cause of death was surgical shock(?)

(2) One death 16 hours after general exploratory and appendectomy. Cause of death was cerebral embolism.

(3) One death from general septicemia. The patient was an advanced case of pulmonary tuberculosis complicated by a violent gonorrheal urethritis. The operation was for a ruptured appendix with diffuse streptococcic peritonitis at time of operation. Death occurred during the eighth day.

(4) One death at 45 hours after operation in a posterior gastro-enterostomy for duodenal ulcer. Cause of death was hemorrhage. This patient moved about in bed against instructions. Post-mortem examination showed that the hemorrhage occurred at the site of the ulcer in the duodenum. Possibly this may have been caused by manipulations at time of operation.

(5) One case died four months after a simple colostomy for a perforated tuberculous ulcer of the cecum. This man developed acute severe symptoms and was operated as an emergency. He had a perforated ulcer of the cecum with peritonitis. Colostomy was done and drainage established, after which he lived four months and died of toxemia due to tuberculosis; a terminal case before surgical complications arose.

(6) One case died three weeks after appendectomy for acute appendicitis. This patient had been considered a terminal case for several weeks and was in severe pulmonary hemorrhage at time of operation. If considered as chronic appendicitis, no one would have given an operation any consideration, but symptoms arose which made him face a death of peritonitis. Under local analgesia a gangrenous appendix was removed. The patient completely and uneventfully recovered and made a surgical convalescence and was entirely well from his abdominal condition when he died.

As a surgical risk, he was a most formidable spectacle, in hemorrhage, with a chest literally riddled with tuberculosis,

multiple cavitation in both lungs, yet to operate him for his acute abdominal condition was an act of mercy only.

(7) (8) (9) Three cases have died of tuberculous toxemia following aspiration of the chest for tuberculous empyema. Aspiration was done to relieve cardiac and respiratory embarrassment. Death occurred at four, five and six weeks respectively.

(10) One died of toxemia and possibly general septicemia, six weeks after a partial thoracotomy with resection of portions of ribs for abscess of the lung.

(11) One death from myocardial failure in an advanced case of pulmonary tuberculosis, who had been operated for chronic appendicitis. This patient died on the fiftieth day following a severe attack of coughing. There was no evidence of any complications or infection of the operative field.

There has been a total of eleven deaths to date—giving a total mortality both immediate and remote of 7.3%. However, only five of these deaths occurred in the immediate post-operative period, which brings primary operative mortality down to slightly over 3%. We feel when the increased hazard, due to the pulmonary lesion, is considered, that our mortality is within reasonable limits.

INFECTIONS

Two deaths were due to general infections, however these cases were undoubtedly septic before they were operated upon.

In the entire series we have had three stitch abscesses, or 2%, and inasmuch as one of the hazards which is to be considered in operating upon the tuberculous, is the frequency of secondary infection, due to lowered resistance, both locally and constitutionally, we feel that our percentage is within reasonable limits.

CONCLUSIONS

1. The analysis of the cases herein presented warrants the conclusion that surgical procedures, when indicated in the tuberculous, should be instituted and the presence of tuberculosis is not necessarily a contraindication.

2. The belief that advanced active pulmonary tuberculosis contraindicates surgical procedures, except for the relief of distressing symptoms, is not necessarily true. Surgical procedures may remove the barrier preventing clinical progress toward improvement of the tuberculous condition.

3. Cases of pulmonary tuberculosis who do not respond favorably to treatment

may be divided into two classes. In one class the clinical condition is principally primary and is not met by adequate resistance. The majority of such cases follow an unsatisfactory course. In the second class the severity of the pulmonary condition is due, in part, to aggravation from a surgical complication. In this class of cases operative measures may be safely carried out, provided that due consideration be given to proper choice of anesthetic, preliminary preparation including prolonged rest, and prolonged post-operative care.

4. Ether as an anesthetic should be used only in those cases in which an analgesia is not expedient, as for instance, in operations of the upper abdomen and to facilitate surgical explorations. Because in these cases complete relaxation is essential to thorough surgical work.

5. The analysis of the post-operative clinical course of the advanced tuberculous cases justifies the conclusion that operative procedures, when indicated, should be undertaken as early as feasible. It is obvious that favorable prognosis will be proportionate to the degree of the patient's physical well being, prior to the institution of operative treatment.

6. Even in the terminal case, where surgical complications are causing actual suffering, the patient is entitled to surgical relief, the prospect of prolongation of life and even partial recovery, counterbalancing the possibility of acceleration of the disease.

(NOTE:—The discussion of this paper will be published in a subsequent issue, when Dr. K. D. Lynch's paper on "Kidney Tuberculosis" is published. The two papers were discussed together.)

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DIAGNOSTIC DIFFICULTIES IN THE RIGHT ABDOMEN

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The right side of the abdomen is often referred to rather loosely as the surgical side of the abdomen because it domiciles those very frequently surgical organs, the gall tract, especially the bladder, and the appendix, and it is the site of most acute abdominal conditions due to visceral perforations. These perforations giving rise to acute abdominal crises, occur in their order of frequency as follows:

- 1 The appendix.
- 2 The gall bladder.
- 3 The pylorus, including the duodenum.

Of course, there are other acute conditions besides perforations, mainly inflammatory, which give rise to surgical emergencies in the right side of the abdomen and some, tho not nearly so many, in the left side.

The two sides of the abdomen have in common the following viscera, kidneys and ureters, small and large bowel, ovaries and tubes. In addition, the right side houses the liver and bile tracts, the pylorus and duodenum which, although almost midline located, still, by virtue of the mesenteric water shed, become surgically right sided. The left side, in addition, contains the spleen, which, however, is relatively rarely surgical and rarely exhibits sharply defined surgical indications.

But it is not with the surgical acute conditions that we wish to deal in this paper.

Acute surgical abdominal conditions are not usually difficult of diagnosis and they afford surgical indications so great that immediate operation is usually imperative, and therefore in these, diagnostic errors are of less importance. Chronic conditions on the other hand offer much greater diagnostic difficulties and operation may or may not be indicated.

Attention is called to the difference in the viscera of the two sides briefly in order to give us an anatomical basis from which to proceed.

It is humiliating to the surgeon and most disappointing to the patient to still have the pain in the southwest quarter of his abdomen after he has paid for having his appendix removed. In reviewing the histories of some 15,000 surgical cases among which many had had their appendic-
es removed elsewhere and many of our own

cases, in number altogether about 5000, forty percent still were complaining of the same syndrome for which the operation had been done. Most of these chronic sufferers had been passed from one to another doctor with diagnosis of "adhesions." Not a few of them had been operated and re-operated for "adhesions," each and every surgeon finding what he had diagnosed, all of which had done the patient no good.

If our surgical work has taught us anything clearly, it is to more and more firmly establish an aphorism uttered several years ago by the author. That is "adhesions never cause trouble or give rise to symptoms no matter how massive unless they interfere partially or completely with the drainage of a tubular viscus or compress a sensitive organ." Most of the trouble arising from adhesions are sudden and colossal and constitute surgical emergencies of tremendous magnitude. These things have been matters of surgical experience and operative demonstration. They are mentioned only because we have all sinned. Let us go and sin no more. Let us be honest with our patients, honest and big enough to say "we do not know" when such is the case. But let us not say we do not know until we have exhausted every means to find out.

THE CHRONIC APPENDIX

So pessimistic has the writer become after reviewing histories concerning operation for chronic appendicitis, and studying reports from other Clinics that he had almost come to believe that the term chronic appendicitis was a colossal hoax to all concerned, surgeon and patient. Four in every ten of these patients had been misoperated. Worse still, even with the abdomen open, the diagnostic error was not corrected.

Deaver says that the scalpel is the greatest diagnostic instrument in the world. Perhaps so, but it has never been known to have any cerebral organization worth mentioning.

Case Report: Mrs. X. a concrete and actual case tho her name is legion and will type many, has suffered with a periodical pain in right lower abdomen, associated with soreness since early childhood notwithstanding she has had two operations, one of which completely unsexed her, for its relief. First, during childhood her appendix went by the board. Later her ovaries suffered vicarious sacrifice. Radiograph showed why relief was not obtained, there being a stone in the right ureter. An extraperitoneal uretero-lithotomy gave immediate relief.

A stone in the right ureter is one of the most frequent causes of error in the diagnosis of chronic appendicitis. While its diagnosis is simple it cannot by any means always be done clinically and requires the association of the surgeon with the urologist and the radiologist. But there are clinical hints which should put the surgeon on guard. The first of these will be found in the urinalysis. During an attack red blood cells, generally only in microscopic numbers, will be present. Pus cells in old cases are also common. Either should always be traced to their source, and most emphatically should not be ignored.

As in this case, a small, tender, moderately movable mass could be felt through the anterior vaginal wall on a line with the right ureter about one inch from the bladder. While but few ureteral stones can thus be palpated for the simple reason that not all are located within reach of the finger, yet always they should be diligently sought. A little time will be consumed in these various examinations and special skill must be possessed or available, but if surgery is not to fall into disrepute in the lay mind, which at present it is dangerously near to doing, he who essays to be a surgeon must so equip himself. Even renal calculi will deceive very astute clinicians as the following case occurring in the wife of a physician will show:

Case, Mrs. H. The wife of a prominent and able physician, aged 40, was brought to the Clinic for an operation for chronic appendicitis. No previous history of stomach or urinary disturbances. The present trouble began four years ago with attacks of pain over the appendiceal area accompanied by nausea, vomiting and soreness. For the past year the pain and soreness have been more or less constant.

The abdominal physical findings are negative except for a rather high soreness in the right lower quadrant. Blood count normal. Urinalysis negative.

This being a chronic case it was suggested to the husband that a little time should be taken in having a thorough work-out of the case. He, however, was positive that the diagnosis of chronic appendicitis was correct and insisted on an immediate operation. He being a physician of high ability, the writer yielded and removed what to him seemed to be a perfectly normal appendix. Convalescence was uninterrupted. Four months later she was brought back with the same syndrome which had been interrupted only as long as the operative soreness had lasted. Now we did what should have been done before operating at all, regardless of the stand taken by her husband, even though he were a physician. Radiography showed a stone in the kidney pelvis.

A pyelo-lithotomy gave her complete relief.

As this case demonstrates and as is well known, a stone may be domiciled in the pelvis of the kidney without giving clinical or laboratory evidence in the urinalysis, of its presence.

Case No. 3 is a four-year-old girl who was taken ill rather suddenly with pain in the right side of her abdomen, tenderness, no muscular rigidity, (not a dependable symptom during childhood) nausea, and vomiting, and fever to 103. The family physician was called, diagnosed acute appendicitis and wanted to take her immediately to the hospital and remove her appendix. To this the mother objected, very sensibly on the ground of insufficient examination. Yet this case being acute gave much justification for the diagnosis and urgent advice for immediate operation. Danger might lurk in delay. But just one little thing was overlooked which would have stayed the surgeon's hand and prevented a worse than useless operation—a urinalysis. When she was brought to the Clinic this was done while the clinical examination was being made and the report came back—"many pus cells in each microscopic field." In passing it is not amiss to say that the blood showed a leucocytosis, of course, for she had an acute pyelitis, right.

This case was treated to a cure by Dr. Mraz, head of the Urological Department in association with the Internal Medicine Department.

Our fee was not as large, nor earned so easily as could have been by an appendectomy, but the little patient was **cured** and not **risked**. Let us say that the chief end of surgery is not do a surgical operation, but to cure a patient. This case then illustrates a certain part of our forty per-cent failures.

The chronic cases of pyelitis are a more frequent source of confusion. The cases present a long history in very many ways quite like that which we are taught to believe is the clinical syndrome of chronic appendicitis. Intermittent attacks of right lower abdominal pain, often a little fever during attacks, not infrequently slight nausea, constant soreness and rarely rigidity.

The work in our Clinic bears me out in asserting that no case of this kind should be appendectomized before the right renal tract is exonerated.

An extremely large number of these cases come to the Clinic after the appendix has been removed without any, or at best only a short, respite from their complaint. Always without an exception which I can now recall they have been told that this recurrence of pain is due to the formation of "adhesions." Some of them have been re-operated to relieve these "adhesions" without result. To demonstrate most convincingly to an audience of surgeons the truth of the aphorism mentioned above, it is only necessary to ask, if there is a surgeon present who has ever seen permanent relief follow a lysis of intra-abdominal adhesions, except where this rule applied. Certainly it will be admitted that operations for adhesions is a sorrowful enough surgical chapter.

In arriving at a correct diagnosis in

practically all chronic intra-abdominal lesions it is necessary to divest our minds of the so-called classical text book clinical pictures. They rarely occur in real life. Anatomically there is a sufficient reason that this is so.

Experimentally it is being demonstrated that most of these chronic infections, to say nothing of the acute, are bloodborne. Moreover in the right abdomen we find that at least the pancreas, liver, gall bladder and stomach are unfortunate in having terminal facilities in common. In chronic disease of any one, the others can scarcely long escape. So it is that the complaint of the disease often is but a babel of voices out of which, only now and then, can a word be understood and it requires a clinical linguist to do that. Plainly then it is the exception that in chronic disease one organ alone is involved.

Next we must approach these cases diagnostically from every possible angle and avail ourselves of every special diagnostic means. Right here in this field lies the urgent necessity for "group practice." But a coordinating head is necessary to effectively wield this two-edged weapon.

In this particular trouble a perfectly competent urologist is a necessity. With the aid of such, a differentiation is easy, provided the surgeon will cooperate to the extent at least of not being in too great haste to operate and even to be willing to forego operating at all.

The laboratory aids us here and serves to emphasize the fact that our pathologist must be an integral part of our clinical organization.

These cases of chronic pyelitis will account for a goodly percentage of our troublesome forty percent.

STRICTURE OF THE URETER

Here we are approaching a question which, ever since Hunner made his preliminary announcement that stricture of the ureter is a clinical entity, has stirred up considerable controversy. On the Atlantic coast, north of Baltimore, it is difficult to be believed that any thing good can come out of this medical Nazareth. But as out of the Nazareth of old, something good did come in spite of the prophets, so the professional world is fast admitting that this Baltimore Nazareth has produced something worth while.

Whether ureteral stricture is the result of a stone present or already long past, or due to an infection from a distant focus, or whether both the stone and the stricture are end results of the infection does not concern us here. The fact that it exists

and gives rise to symptoms which mimic closely the chronic appendix syndrome and that many appendices have been removed on its account is of importance to every conscientious surgeon who may be thus misled.

Case No. 4 clearly visualizes just such a case: This patient, a young married woman, was sent to the Clinic for operation as a case of chronic appendicitis. Her clinical story which I need not burden you with now, could very well have been interpreted as that. But the point is that she was not a surgical emergency and did not have to be operated upon immediately and, as it turned out, not at all. The blood showed no leucocytosis but the urine did show several pus cells to the field which decided the surgeon to refer her to the urological department for a urinary work-out, the result of which was that pyelography showed definite ureteral stricture. The patient has had complete relief by dilation of the stricture and the surgical department has seen nothing more of this case.

This case illustrates many, some of which have come already relieved of the appendix but not of the pain, and is typical.

Into this category will go a not inconsiderable number of our forty percent failures.

ACUTE RENAL COLIC

Illustrative Case: Sent in as acute obstruction of bowels, Mr. A., a driller in the oil fields, age 47. Negative family and personal history.

Present attack began fifty hours ago, following heavy lift, with severe abdominal cramps. No nausea until a hypo of morphine was given. No fever. Moderate amount of soreness. Bowels had been regular before attack. Had moved but little since attack. Passes a little flatus.

Examination of the patient shows a muscular man, negative in every way except for moderate abdominal distension. Operation deferred.

This case illustrates defective history taking. The first examination from which above history is copied was made in the night and was only intended to elicit whether an immediate operation should be done. After twenty-four hours rest in the hospital the following appears in the history of the case in the handwriting of the author:

"Upon close questioning the patient gives a clear history of frequent and painful urination of a few drops of urine during the attack of pain and while enroute on the train. Also, that while on the train a small body of some kind suddenly popped out the meatus while he was straining, after which there was cessation of pain. The above history convinces me that there has existed a latent stone in the ureter which was started on its bladderward migration by the violent lift recorded in above history. That the stone was passed enroute. It is recommended that this patient be referred to the urological department for study. Ureteral stricture suspected."

Pyelography showed a moderately dilated ureter with stricture about 1½ inches from the bladder. This is the point of election for the lodgement of calculi and also for the location of stricture.

What interests us in this case is why a

perfectly competent physician should have diagnosed the case as one of obstruction of the bowels. **Intestinal paresis** is the explanation. Any severe pain reflected thru the sympathetic abdominal nerve supply (solar plexus) will most certainly produce intestinal paresis than which at times there can be no completer intestinal obstruction. In a post-operative way we are all familiar with this phenomenon. There is no use whatever in hammering a paralyzed bowel with cathartics. In fact it is as harmful as whipping an exhausted horse to make him pull.

In the beginning it differs from mechanical ileus in that the paretic belly is as silent as the grave, while the mechanical obstruction is noisy. But the history alone will send you in the last stage of mechanical ileus for now, too, the exhausted bowel has become paretic.

This man presented a paretic ileus when the doctor saw him first; his bowels would not respond and he overlooked the history which would have set him on the right road. There were two finger posts in this case: 1. The history of frequent painful urination. 2. That a silent abdomen so early could not mean a mechanical obstruction.

The renal tract, although not intra-abdominal, is closely associated with the intra-abdominal viscera through the sympathetic as well as cerebro-spinal nerve supply.

TUBAL AND OVARIAN DISEASES

Contrary to the usual rule that acute diseases are more easily diagnosed than chronic, an acutely inflamed right tube is very often mistaken for an acute appendicitis. History is not reliable here, for what woman will admit that she has been exposed to gonorrhoea? Moreover, she may be the innocent victim and the physician is of necessity handicapped in his quiz. Occurring in a young unmarried woman the difficulties of the problem are enhanced. But the need of an exact diagnosis is not imperative here since both an acute appendix and an acute tube are surgical, and both are intra-abdominal. The median lower incision should be the one of choice anyway in the female.

Chronic salpingitis, suppurative or non-suppurative, should offer no difficulty. Moreover the rule holds good that with right salpingitis the appendix is secondarily involved. The same caution as to location of incision holds here as in the acute tube.

Ovarian Disease, especially cystic degeneration, is not nearly so common as we

formerly were taught. Indeed small cysts of the ovary are so common that they must be normal. Resections are growing less frequent in the hands of the experienced surgeon. The removal of normal ovaries—the Batty operation—is fortunately now relegated to the realm of empiricism. No real surgeon today will remove an ovary without apologizing and having his alibi well prepared in advance. Yet sometimes it is done, the surgery of it is so easy and the patient makes such a smooth operative recovery.

REMARKS

It is the contention of the writer that forty percent of failures to relieve patients who have submitted to an appendectomy is too large a margin of error. What applies to the appendiceal operation applies with equal force to other chronic lesions of the abdomen. Chronic conditions require far more surgical judgment than the acute. These constitute operations of election and choice and afford time and opportunity for study.

In our Clinic we have found that the commonest error is confusing right renal and ureteral diseases of one and another kind with chronic appendicitis. Another common error is to remove the appendix for chronic gall tract disease. Of course this error is unpardonable since a general exploration of the abdomen is always called for in all chronic surgical conditions and since the two conditions especially are so frequently associated.

Ureteral stricture, of renal tract troubles, is the most frequently mistaken, since it is not universally accepted as an entity and since the diagnosis of it requires special skill. In the experience of our Clinic, right renal tract disease will account for at least half the erroneous diagnoses of chronic appendicitis.

In the east, especially, ileo-cecal valve incompetency has been stressed. We have made it a point in the gastro-enteric x-rays and operating table studies to study these cases in connection with the clinical history before and after operation, utilizing all abdominal cases coming to operation. We have not yet been able to form a clinical or symptomatic picture or to conclude that it gives rise to symptoms at all. To sum up then we would say:

1. That since confusion in diagnosis is commonest in chronic ailments and since these are rarely urgent and since forty percent of these are operated erroneously in the country at large, more time should be given in their preoperative study.

2. The operation for chronic appendici-

tis is scarcely any longer justifiable without first having excluded the right renal tract by special examinations.

3. That "adhesions" have long enough borne the onus of faulty diagnosis and inadequate or unnecessary operations.

4. Intra-abdominal operation for chronic conditions implies a gentle but thorough general exploration. While this is "old stuff" it is not in our experience, being observed except in the hands of the few. We have found that at times the only satisfactory exploration of the stomach necessitates a gastrotomy.

5. Satisfactory chronic work is no longer a one-man job but requires the close cooperation of all the specialties. This can be accomplished fairly well by staff cooperation of hospital staffs, but the most shining example of the best type of cooperation is exemplified in the work of great Clinics familiar to all of us. In such a Clinic all the evidence adduced by the special examinations comes under the review of an able clinician who then sees the patient as a whole and directs the course to be followed.

6. We must not think of the patient as a subject, the purpose of which is to furnish the surgeon an operation. The operation, if necessary, is for the patient, not the patient for the operation. The operation should be reasonably certain of relieving the patient of his symptoms and the surgeon should be reasonably sure it will do so before advising it, or it should be frankly exploratory. If the latter, every limitation in the patient's interests should be thrown about it.

DISCUSSION

DR. P. G. CORNISH, Jr., Albuquerque, N. M. (Opening): Dr. Blesh's paper has been very comprehensive. It, of course, has taken up the points one by one that will always be considered in chronic abdominal conditions. In my experience I have seen a good many cases, particularly of the renal tract, or rather the urinary tract, which have been operated on for appendicitis without any consideration of that part of the tract. I remember one case of a stone in the left kidney which had been diagnosed as appendicitis; the pain had been in the right side, but the doctor said it was reflex pain. These are things which make us rather ashamed of some of our methods of medicine and surgery, and more desirous of really thorough work.

There is one condition in the Southwest that makes it a little more difficult to go into these cases more thoroughly, and that is the fact that there is not a great deal of money; our patients are not wealthy. We do not have large clinics, etc., where laboratory work and x-ray work can be done without a great deal of expense to our patients. That is a handicap, but I think that with a more careful study, and with the thought in mind that probably an operation is not necessary, these things can probably be overcome. In cases where it is abso-

lutely necessary they can usually be obtained free of charge to the patients in a great many cases because our laboratory men will cooperate with us in those things.

I think one point Dr. Blesh did not emphasize particularly was the x-ray examination, which, to my mind, is quite important; it is more important in the positive cases than in the negative cases. Quite often there will be a negative intestinal examination and yet with a diseased appendix. The physical examination is, of course, very important.

I have an opportunity to examine a great many normal young men. I find that in most of them there is considerable tenderness over the iliosacral region, a great deal more than in any other part of the abdomen. I think this in itself is one of the causes of our 40% of operations which Dr. Blesh quotes. I think I have heard it quoted as being really higher than that. But that diagnosis of the right lower is a very common thing, and I think leads to erroneous diagnosis in many cases.

Dr. Blesh's paper has taken up most of the points and I am very glad to have heard it. It reflects my sentiments and desires along those lines absolutely, and I wish it could be heard by more of the doctors.

DR. M. K. WYLDER, Albuquerque, N. M.: I think this paper is certainly a very timely one, and, as Dr. Cornish said, I regret that it was not read before the crowd went home.

Every community,—and I am judging the others by my own, of course,—has some trained fellow who thinks that every part of the abdomen is the appendix. He has learned how to take out an appendix, which isn't much of a surgical feat, and by mixing it with conversation such as "in two hours, old man, you would have been a dead man," he manages to get by. I know just recently I knew of a woman who had her appendix removed without any relief, and it was one of those cases of stone in the pelvis of the kidney.

Unless it is an acute condition, these long chronic pains should not be rushed to the hospital. There should be a room in every hospital where cases of this kind could be studied, and no appendix should be removed without a very careful study of the case. If steps are not taken to curtail these fellows who take out appendices for amusement, it is going to put the whole medical profession in disrepute. This cutting out appendices and not getting any relief is what is getting us into disrepute, not the Christian Scientists, the chiropractors, or the osteopaths,—it is the incompetent men in our own profession who go ahead and operate without any study of their patients.

I think Dr. Blesh's paper is very timely and very instructive, and is well worth listening to by all of us.

DR. F. D. GARRETT, El Paso, Tex.: I think the doctor brought out some excellent points that should make us all more careful in our diagnoses. One thing he did not bring out particularly is the chronic colitis. I think very often if a careful examination is made in cases where appendicitis is indicated, you will find it is colitis. Recently I saw a young woman who had been operated on for appendicitis who seemed to have attacks of pain with evidence of colitis. Her cecum was very low in the pelvis, and the colon ptosed. In that case the position of the colon seemed to have a great deal to do with her colitis. I put on a bandage to support the colon, and she seemed to get more relief from that than anything else that was done for her.

I am very glad to have heard this paper read, and I think it is a very timely one.

DR. G. WERLEY, El Paso, Tex.: I am no surgeon, but I want to say that I think that paper certainly hit the spot, and I want to say that at one of

our hospitals in El Paso we are trying to standardize it, and I think it is a most excellent thing. One of the requirements is that there shall be a urine examination before every operation for appendicitis. Also there is an efficiency committee that looks over all the charts, with criticism as to what has been done, and what is going on. One of the results of this has been that several of our surgical enthusiasts have taken their surgery elsewhere, as they do not find it very profitable to work under these conditions.

DR. C. A. THOMAS. Tucson, Ariz.: I feel that this paper is certainly a timely one. Certainly if 40% of our operations are done for the wrong thing, it emphasizes a statement that I have always heretofore rather questioned,—that there are only two types of appendicitis,—acute appendicitis and appendicitis for revenue only. Probably this was right, after all. Certainly Dr. Blesh has brought to us a very forceful message which we should all bear in mind.

Dr. Cornish speaks of the inability to get laboratory work done. He is right no doubt, but I do think that the patient should be sent where he could have the proper work done; if you are not sure of your conditions, certainly the operation should not be done at all.

Dr. Blesh speaks from conviction, and he is one of my fathers in medicine, I might say; I got some of my early training from him although he does not look any older than I do. He was in Oklahoma when surgery there was in its infancy. I think on one or two occasions I have seen him in the oper-

ating room with a gun in his pocket, but nevertheless he did some mighty good work in surgery. I certainly appreciate his paper.

DR. A. L. BLESCH. (Closing): I must say that I have enjoyed these discussions a good deal more than I enjoyed reading this paper. Dr. Thomas refers to early days in Oklahoma, and I will say that things were pretty wild there in early days, and sometimes if we disagreed with another doctor in the operating room, it might have been wise to have a gun in your pocket.

But seriously speaking, I am not talking only to you gentlemen on this subject of my paper; I have talked it all over my own state, because I have seen so many cases who have been operated on for appendicitis and without relief; I ask many of them how much of an examination they had previous to operation; they will say "Oh, the doctor punched me in the side and hurt me, and said 'Chronic appendicitis,—your appendix comes out right now.' Such a case was one I quoted here. And there is altogether too much of it. One of the speakers here mentioned that it was not the Christian Scientists who were hurting us, or the chiropractors or the osteopaths, and he was right; what is hurting us is the doctor delivering these unnecessary operations,—this appendicitis for revenue only; this the man who is hurting our profession.

In our city where a hundred physicians used to bring their surgery to me, perhaps six bring it to me now; they can get more by taking it elsewhere, they have found.

I want to thank you gentlemen for your criticism and the discussion, which I have enjoyed very much.

A DISCUSSION OF ENURESIS

M. K. WYLDER, M. D.

ALBUQUERQUE, N. M.

(Read before the Medical & Surgical Association of the Southwest, at its tenth annual session, held at Phoenix, Ariz., Nov. 6 to 8, 1924.)

While diagnosis is the most important phase of medicine and the man who makes the best diagnosis is usually the best doctor, this is a condition in which the diagnosis either precedes or comes in with the patient. Usually the parent tells you he will bring in his little girl or little boy who is afflicted and wants to see what can be done for it.

Enuresis is not a physical entity, it is rather a symptom that may be caused by a great many pathological lesions, and in many cases no pathology can be found.

Animal experiments have uncovered the fact that the nervous mechanism of urination varies in different animals. In infancy the new baby urinates about thirty times a day and it is an involuntary act. From one and a half to two years, according to training, the baby goes dry all night and it then becomes a voluntary act. In some babies the infantile condition persists.

The nervous mechanism of urination has not as yet been solved. Recent investigations have shown that the trigone muscle seems to be a continuation of the muscular coat of the ureter; that it is plant-

ed on the muscular coat of the bladder. This trigone muscle has the power of opening and closing the bladder and it derives its nerve supply solely from the sympathetic nervous system; also that there is no true sphincter, the sphincter muscle of the bladder being composed of two loops of muscle of the bladder wall, one from the longitudinal coat and the other from the circular coat.

The experiments of Weitz & Götz with a manometer are very interesting. They are able to show that in children suffering from enuresis, by inserting a soft catheter and raising the intravesical pressure, the normal child experienced a desire to urinate while the sufferer from enuresis expressed no such desire.

It is interesting to consider briefly the various etiological factors given by different authors, without attempting to cover the ground but quoting a few of the most prominent to show that there is no uniformity of opinion as to cause.

Holt gives the causes as malformation, nervous conditions, idiocy, brain tumors, continued infantile conditions, anything in-

creasing the irritability of the terminal filaments of the bladder nerves, and anything interfering with the cervical control of these cerebral centers.

Kerley discusses lack of coordination from faulty development of the sympathetic mechanism; dietetic errors, and sums it all up with the statement that if no improvement follows the removal of all possible dietetic and peripheral causes we must assume that we have an idiopathic incontinence to deal with.

Church & Peterson say nocturnal enuresis is a common disorder of weakly neurotic children and common among neurasthenics and epileptics. In certain instances it undoubtedly is an automatic action of partial somnambulism.

White & Martin classify enuresis as a functional disease of unknown cause.

Pisek enumerates phimosis, hyperacid urine, adenoids as exceptional causes, but says the great majority are due to lack of control sphincter centers or the higher cerebral centers. If voluntary control is obtained or inculcated over the lower centers the case is cured. He states further the habit is more commonly found in active, energetic children who by night time give evidences of neuro-muscular fatigue.

Abt says he doubts whether tonsils, adenoids, or phimosis are ever causes and states that when a cure follows these operative procedures it is due to the psychic influence of the operation which could have been produced with much less effort. He reports a case of a little boy that was brought to him, who had just been circumcised with the hope of curing this condition, who was an absolute idiot, and states in most of his own cases the condition is found in children who seem to be otherwise normal but who are badly trained, who have a neuropathic constitution, who are undeveloped. Nearly all authors mention spina bifida occulta and yet recent radiographic studies have brought out the fact that many children have spina bifida occulta who are in no way troubled by enuresis.

Porter & Carter give as the principal cause improper training and the establishment of a neurotic habit.

Feer enumerates poor training, nocturnal epilepsy, juvenile hysteria, and considers it as an evidence of hereditary stigmata of degenerative inferiority.

Crozier Griffith mentions phimosis, preputial adhesions, adherent clitoris, vulvo vaginitis, balanitis, renal calculus, rectal fissures, thread worms, adenoids, foreign bodies in the nose, vesical calculus, cystitis,

undue acidity of urine, malnutrition, anemia, chorea, epilepsy, headache, neurasthenia, hysteria, improper food or clothing, fright, excitement, thyroid insufficiency, fatigue, too heavy bed covers.

When we consider the therapeutic remedies offered we find as many methods of treatment as there are ideas as to causes. If the urine is acid potassium citrate or bicarbonate is recommended. In order that it may be rendered alkaline pituitrin, belladonna, strychnin, ergot. Removal of tonsils and adenoids, circumcision, removal of clitoris, diet, restriction of fluids, rest, hygienic directions, treatment by wholly psychic methods. There is such a variance of ideas that it seems that it is high time a thorough study was made by some one.

Will and Orgel have given a very complete discussion in which they report fifty cases treated by medicines and fifty cases treated without any medicines whatsoever. The medical cases were treated with belladonna, pituitrin, urine rendered alkaline, and other therapeutics as indicated. The fifty cases treated without medicines were talked to as to their condition and were encouraged to break the habit by themselves and were given a chart with instructions to put on a gold star for every dry night and a red one for every wet one.

Out of fifty cases treated without medicine, 40% were mentally defective and yet of these cases they reported as cured 38%, improved 34%, no effect 28%. Of their thirty cases not mentally defective they reported as cured 43%, improved 30%, and no effect 27%. Of their medically treated cases they reported as cured 38%, improved 40%, no effect 24%, from which it would appear that a great deal of medicine has been wasted in this condition.

Emerson was the first, I think, to advocate this plan of treatment which with slight modifications has been reported favorably by various authors. He treats it as the persistence of an infantile habit and directs that the child have no liquids or fruits after four p. m., a light supper, such as a cereal with not more than a tablespoonful of milk, a bland diet, no tea, coffee or highly seasoned food, no candy or desert between meals; the bladder to be emptied on going to bed and at intervals of one hour until midnight and two hours from then until morning. These periods to be lengthened one-half hour each night. The child to be encouraged with stars or other rewards for dry nights but not to be punished for wet ones, as it is an involuntary act and occurs unknown to him.

Guard against over fatigue; observe morning and afternoon rest periods.

Following this plan in a general way I have treated quite a number of cases with uniformly good results. It has been impossible to follow all my cases as some of them only came in once and were never heard from again, and none of my cases were mental defectives. I have two cases that were particularly interesting that I will report in detail:

J. S. 12 yrs. old, seemingly in normal health, had not been afflicted with enuresis until lately. When school was out he got a job on a ranch doing work too hard for a boy of his years, and at night he was exhausted, with the result that he developed enuresis, and drenched his bed two or three times every night. He was directed to stop work, given the usual directions and put to bed for a few days. The first week his chart showed three dry nights and the next week it showed seven, and by care about overtaking his strength he has had no trouble since.

Another case of a little eight-year-old girl who was underweight but otherwise healthy; questioning as to food habits brought out the fact that she ate considerable candy and cookies between meals and couldn't eat at the table. After giving her the usual treatment with both morning and afternoon rest hours and rigid instructions that all food between meals be stopped, her appetite soon picked up. At the end of the first week she showed only one dry night; second week four; third week six; after that no further trouble. It is interesting to note that in stopping the food between meals her appetite picked up at once and her weight became normal.

These two cases bring out two very common causes: First, exhaustion; many of these children play hard and by night are exhausted and when they fall asleep the relaxation is so great that they lose control. The other is undernourishment; nibbling between meals does not supply much nourishment but the stomach is never empty and they do not eat at meal times and so go on from bad to worse. The best way is to stop them from eating between meals and correct these two errors, and to my mind you have gone a long way towards the solution of the question.

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DISCUSSION

DR. CHARLES S. VIVIAN, Phoenix, Arizona, (Opening): In this it is hard to say whether the trouble is due to the training of the children or the training of the parents. For a person to get up every hour from the time the child goes to bed until midnight, and then every two hours, would be a pretty hard rule to follow, but if it is effective it would be worth while, I suppose. It is the penalty the parents have to pay for not teaching children in their earlier years. From my experience a great deal of this trouble comes from folks who don't pay much attention to their children, but who scold them and keep them scared all the time, and for such people I think it is a good penance for them, later on, to have to get up every hour.

I know of a child two years old who had her tonsils removed and it cured her; they moved away shortly after that and I lost track of her. It seems a somewhat peculiar thing that this should have anything to do with bed-wetting, but it seemed to, with her.

I have found that if you teach these little fellows, or have their mothers teach them, when they urinate, to stop and start, and stop and start again, two or three times, and then give them a little ergot, perhaps a drop or two on sugar three times a day, it seems to tone up the muscle and help them. The stopping and starting seems to help them in the control of the bladder shineter.

DR. E. R. CHARVOZ, Phoenix, Ariz.: I am familiar with the paper Dr. Wylder has just read as the doctor was kind enough to send me a copy, and I think it brought out the only aspect of enuresis that is at all hopeful. There is such a large variety of systems recommended, and if they report truthfully there are so many failures. If you rule out the organic disorders of the urinary tract and the central nervous system, and those cases which occur in the feeble-minded, then the remaining cases,—and they are a large number,—can be hopefully treated by the method outlined by Dr. Wylder, and a large percentage cured. His idea of rest is immensely important. Most of these children have a definite neurotic tendency; lots of them have foci of infection, which keep them below par, such as tonsils, adenoids, and often the neglected nose; then the output of energy is too large, and should be cut down; they play too hard,—some of them should not even be in school or play any competitive games, and should have their hours of rest, as the doctor suggests, and the nervous system should not be stimulated. Many of these children are not treated properly,—they are allowed to go to movies, etc., when what they need is to be put to bed, fed properly with an absolutely controlled diet, and get their nerves well padded out with fat. That is our main trouble with a lot of these undernourished children. And then there is the factor of suggestion. It seems to me that is the only factor that all systems of treatment have in common. A child, even at a tender age, can be controlled by suggestion.

I have found that it is a good plan for the child to report to the mother during the day when it wants to urinate, and then be told to stop and start, and stop and start, as Dr. Vivian has suggested; apparently this helps to establish control of the brain over this little known function. Then, as the doctor suggests, these patients should be awakened,

especially after they have been asleep about an hour, and also should have the amount of fluid cut down before going to bed and some suggestion at bed time can be given them. That treatment, with slight modifications in the different instances, can be applied with great benefit to enuresis, and it is also a mighty good treatment for a large percentage of the little ailments of the average child.

DR. P. C. CHRISTIAN, Whipple, Ariz.: I think there probably is some connection between the genito-urinary tract and the reflex action of the bladder, with bad tonsils, probably due to the irritation to the bladder from the infection of the tonsils and the attendant general poor health. The condition we find in most of these cases of enuresis is general poor health, and in the instance to which the doctor has just called attention, in which the tonsils were removed, the general health of the child was probably improved, which relieved the child of a great deal of its nervousness and irritation of the urinary tract.

In our hospital we have had a number of patients who have had a good deal of trouble with the prostate gland and occasional discharge from the ureter without any history of ureter infection; in nearly all of these we have found them suffering from chronic tonsilitis, and after removal of the tonsils we have had a very satisfactory recovery from the urinary irritation. Of course we follow up the tonsillectomies to see that there is no diseased tissue

left,—which frequently occurs; after tonsils have been removed there will be sometimes a small recurrence of the trouble, either above or below, due to this. By killing this with silver nitrate it will straighten up.

DR. M. K. WYLDER, (Closing): The point Dr. Charvoz brought out about training the child, especially the enuresis diurna, to watch himself in the day time and take him at the period of urination, having him stop and start several times, is a good one, and will help the child to get control of this function.

The doctor's suggestion that it might be pretty hard for the parents to get up every hour in the night,—I don't think this would be minded very much if the habit can be cured.

About this point of recurrent enuresis, you take a bed-wetter who has been cured and let him get typhoid fever, or have a serious accident, and the condition often recurs, but when the health has been brought again to normal they can get rid of it again. There are a good many others we have heard of like this,—the boys who went to France, for instance; when they got into the trenches this condition recurred,—and there are quite a number of things that will cause this at times. Some of us who are grown up, who might be subjected to some severe fright, or accident, we find we will lose control.

I want to thank Dr. Charvoz and the other gentlemen for the kindly criticism.

UROLOGICAL PROBLEMS OF THE GENERAL PRACTITIONER

BY ROBERT V. DAY, M. D., F. A. C. S.,

LOS ANGELES,

AND

HARRY W. MARTIN, M. D.

LOS ANGELES,

Read by invitation before the Medical and Surgical Association of the Southwest, at Tenth Annual Session, held at Phoenix, Arizona, Nov. 6 to 8, 1924.

The authors have endeavored to cover a large field as briefly as possible under seven headings:

KIDNEY FUNCTIONS

In a few hospitals in the United States it is required that every patient subjected to a major surgical operation which is elective must first have had a renal functional test. Whether or not this is carrying the procedure too far, we hesitate to judge. However, in the aged, the very feeble, the very ill, and patients with actual or suspected renal disease, or with circulatory or other disease elsewhere in the body, yet indirectly capable of affecting the kidney function under stress, there can be no doubt that previous functional tests are necessary or highly desirable.

The renal function may be ascertained by the direct method; that is, by injecting certain dyes into the muscles or blood stream and determining the percentage recovered in the urine in a given time following injection; or, indirectly, by the estimation of retained non-protein nitrogenous substances in the blood—urea, creatinin, uric acid, and the amino-acids. In phenol-

sulphonaphthalein we have a well-nigh ideal substance for kidney functional tests and the use of this particular dye is far more satisfactory as a routine than any other single method, direct or indirect, that has ever been devised. The appearance time in the urine after injection parallels roughly the percentage output during a given period of time. However, it is essential, not only to introduce the precise amount into the vein or muscles, but to make an accurate collection, otherwise the test loses its reliability. It is preferable to introduce a catheter into the bladder for this purpose. After a definite period of time has elapsed following the moment of appearance in the urine, the bladder should be rinsed with plain sterile distilled water and the rinsings added to the urine just collected before despatching it to the laboratory for the purpose of percentage estimation. Half hour periods are usually ample. So many times the patient is unable to urinate at will when these arbitrary periods are only a few minutes or even an hour, and if the patient does void, not infrequently the bladder is incompletely emptied. This may be

due to partial obstruction, resulting in residual urine, or, as frequently occurs, to nervousness or embarrassment (stage fright).

The percentage of 'phthalein output represents the renal function at the particular moment or hour of the procedure. Occasionally the patient apparently has a reflex inhibition of kidney function, due probably to psychic factors or distress incident to instrumentation. For example, a dye test yesterday may disclose a normal appearance time and a normal output, and today, following the introduction of a cystoscope and catheterization of the ureters, the secretion of urine and output of dye may slow up or stop completely for a shorter or longer period, and again tomorrow the function may be quite normal as also expressed by the dye output. If a normal amount of dye is recovered from the urine, it may be relied on absolutely. If low, on the other hand, the answer may be incorrect by reason of faulty collection or reflex disturbance of function. If markedly below normal, this same functional test should be repeated to insure a correct answer, and blood chemistry also resorted to as a check. If repeatedly low, then the kidneys must be functioning badly. Reflex inhibition may be avoided if the procedure is done in a quiet room without cystoscopy or other distressing feature; but when this occurs with ureteral catheterization it is often necessary, in addition, to administer a hypodermic of morphine and atropin.

Noticeable retention of non-protein nitrogen in the blood means BILATERAL renal involvement. In marked nitrogen retention, urea shows the greatest actual increase, although the initial increase is shown by the uric acid content. Normal amounts per 100 c. c. of blood are:

Urea Nitrogen	12-15	mgm.
Creatinin	1- 1.5	mgm.
Uric Acid	2- 3	mgm.
Total Non-protein Nitrogen	25-37	mgm.

HEMATURIA AND PYURIA

Hematuria means inflammatory or other organic disease somewhere in the uro-genital tract. Examination should be made in order to disclose the precise source or sources of the blood (or pus) and definitely the pathology behind it. Examination for the source of hematuria should be done immediately, WHILE THE ATTACK IS ON; for if bleeding ceases before examination is made, it is often impossible to discover the original source until another attack ensues, which may not be for a long time; this for the reason that the bleeding may

be due to incipient disease that leaves in its wake so little residual pathology that can be proved by clinical methods or technical procedures until the disease has progressed. The causes and source of the blood are so many that an adequate cystourethroscopic examination should seldom be omitted; (in practice the principal exception to this rule is when blood in the urine is obviously a terminal hematuria from acute gonorrheal prostatitis or posterior urethritis). Any other method is largely guess work. An adequate examination may prove very brief and simple or it may require a long, systematic, and thorough examination, requiring ureteral catheterization and complete kidney study with bilateral pyelography. This same rule applies to pyurias when the source of the pus is not obvious. So many times a patient with infection in the upper urinary tract is treated expectantly for several weeks until the constitutional and urinary symptoms have disappeared and the urine has cleared. This often makes an exact diagnosis very difficult unless there is a residual pathology discovered, and if an urological examination is intended it should be made during an attack if there is no definite contraindication.

RENAL TUBERCULOSIS

In renal tuberculosis there are practically no urinary symptoms until the tuberculous process has extended to the kidney pelvis. Ordinarily there is a temperature of perhaps 99.2 and rarely any pain over the kidney except in advanced stages. Polyuria, especially at night, is common. But in this stage, when confined to the kidney parenchyma, there is usually nothing to even cause suspicion of renal tuberculosis except tuberculosis elsewhere in the body. When the process extends to or breaks into the kidney pelvis, then tuberculous pyelitis sets in and vesical tuberculosis promptly ensues. The clinical picture then becomes that of cystitis and noticeable pain in the loin does not develop until tuberculous ureteritis causes obstruction with back pressure in the kidney pelvis. An exception to this is, of course, a blood clot in the ureter causing obstruction or from some coincidental pathology. Any patient between the ages of 15 and 40, with pyuria of an apparently causeless nature, continuing over a period of 10 to 12 weeks, with frequency, slight nycturia, perhaps dysuria, and with acid urine that proves negative for microorganisms by the ordinary staining methods, should arouse suspicion of renal tuberculosis.

If one examination for tubercle bacilli is

negative, it should be repeated on other occasions until one either finds tubercle bacilli or is satisfied that they are not present in the urine. The average case of renal tuberculosis is diagnosed only after the patient has had bladder irrigations and other worthless and often harmful therapy over a period of one to two years, when it should have been suspected and diagnosed much earlier. The earlier the diagnosis, the quicker, surer, and more permanent the results. The national bank embezzler sooner or later—usually sooner—is apprehended in almost every instance; but he has more chances of making a clean and permanent get-away than a patient with renal tuberculosis has of effecting a permanent cure from non-operative therapy.

In genital tuberculosis, epididymectomy is ordinarily the only surgical measure indicated or justified. Occasionally Young's radical operation—that of removal of the epididymis, vas deferens, seminal vesicle, and perhaps a portion of the prostate, is necessary to obtain good results, especially where caseation has occurred in the seminal vesicles and prostate.

RENAL MALADIES OF CLINICALLY OBSCURE ABDOMINAL TYPE

Kidney infections, ureteral stricture, renal calculus, hydronephrosis, etc., often give a picture with a remarkable clinical resemblance to appendicitis or cholecystitis. On the left side it may simulate mucous colitis or disease of the sigmoid. If the urine contains bacteria, pus, or red blood cells, urological consideration should not be omitted except in emergency cases or those too ill to withstand cystoscopy. Simple x-ray will often give the clue. Cultures of the urine are often notoriously misleading by reason of contamination from the urethra, through which the cystoscope must pass. They are useful to identify positively and definitely determine the type of organisms in urogenital infections, but not as to their exact source. Smears stained by the Gram method made from the centrifugalized sediment of FRESHLY catheterized urine are far more useful and reliable. Obscure conditions, especially those with otherwise unexplained gastro-intestinal or abdominal symptoms, should be at least considered urologically and, if there is any doubt, ureteral catheterization should be done.

Radiographs of the entire urinary tract (including the prostate in the male, being especially careful, even in women, to get as low as the pubis) should never be neglected in conditions even suspicious of disease in the upper urinary tract. In the long run

with a sizable series of cases, it has been proved that it is the patient's cheapest investment and best insurance, being such a simple procedure, devoid of pain or distress, and frequently cuts short the distress and expense of other examinations. In doubtful cases films of the urinary tract should be taken before barium meals or enemas if fluoroscopy is intended. Quite a number of renal and ureteral calculi are overshadowed by the barium and missed if this is neglected.

However, for the patient's insurance, in hyperacute conditions, it is occasionally wiser to operate needlessly and mistakenly for acute appendicitis than to use much time in prolonged examinations when every hour counts. With negative urological findings, perinephritic abscess can usually be diagnosed with the aid of the x-ray and other clinical data.

UROLOGIC POST-OPERATIVE CONSIDERATIONS IN GENERAL SURGERY

The greatest factor in the production of any infection of the upper urinary tract (including the bladder) is distention and the resulting back pressure. Catheterization without trauma rarely causes infection unless there is pathology, active or latent, in the urinary tract. The utmost gentleness and asepsis should be observed for the reason that the male posterior urethra and its adnexa are easily infected if traumatized. Otherwise, infection follows catheterization only when that bladder is not **emptied soon enough and often enough and continued long enough**. Better twice as many catheterizations as necessary than twenty per cent too few. If a post-operative patient has **persistent** difficulty in urination or fails to empty the bladder, an indwelling catheter should be used. In the female a 22 de Pezzer will be retained without adhesive straps or other means.

The method of introduction is illustrated in Figure 1. An uterine sound with an especially large and rounded point, (a) Figure 1, is inserted through the eye of a Pezzer catheter, (b) Figure 1, and the catheter stretched as seen in (c) Figure 1, with the thumb and fingers **maintaining** it on a stretch alongside of the uterine sound, the point of which is held by the hollow closed end. This decreases the diameter by straightening out the button end and thereby allows it to pass more easily through the urethra into the female bladder. The operator, if right-handed, should stand on the right side of the bed and, after lubricating the catheter with K-Y jelly and with the thumb and fingers of the left hand separating the labia, thus exposing the vesti-

bule with the urethra in the center, the catheter can be pushed on into the bladder. The thumb and fingers of the right hand are then relaxed which allows the button end of the catheter in the bladder to resume its button shape, after which the uterine sound is carefully dislodged and removed.

Inject a syringe full of water or other solution into the bladder to establish the patency of the catheter. Slight traction on the catheter should be made until one's tactile sensation shows the button end has impinged on the bladder neck. Then it is pushed back into the bladder about half an inch and a good sized glass connecting tube of the same diameter at both ends is inserted into the external end of the catheter to weight it down in the male urinal (Figure 2). (If a female urinal is used, it is much more easily upset.) One should cut off enough of the catheter so that excessive length will not cause it to bend or

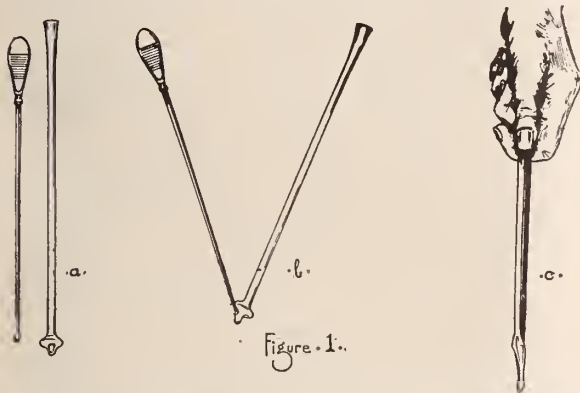


Figure 1. Showing the procedure for preparing the Pezzer catheter for introduction in the female bladder.

kink when the glass connecting tube rests in the bottom of the urinal. The catheter will be self-retaining and adhesive straps or other fixation will be unnecessary. However, if it is connected by a heavy rubber tube to a bottle alongside the bed, a sudden tug or traction may dislodge it.

In the male a soft rubber or a coude catheter answers best. A Pezzer catheter should never be forced through the male urethra because of the trauma it produces. When the so-called urethral fever or chill follows instrumentation, 95 times out of 100 it means active or latent pyelonephritis, very often calculus. Therefore, if catheterization is harmless in the absence of urinary pathology, but not infrequently produces severe reactions if disease is present in the uro-genital tract, then withholding the use of a catheter through fear of infection parallels the ostrich with its head buried in the sand.

LATENT PROSTATISM IN RELATION TO GENERAL SURGERY

A surgeon about to perform a serious operation on any patient has a right to know whether or not his patient is physically sound and, if not, to know the nature and extent of all abnormalities. Quite as IMPORTANT as the heart or lungs—OFTEN MORE SO—is the state of the patient's kidneys, actually and potentially.

If any male patient of the prostatic age (50 years old or more) particularly if the operation be for hernia or hemorrhoids acquired in the last preceding few years (these being so often directly due to the habitual straining caused by prostatism) catheterization for the purpose of ascertaining whether residual urine is present or not and, if present, its amount, should be performed. If residual urine is present, kidney functional tests should never be omitted. If the residual urine is considerable, preliminary drainage by an indwelling catheter should precede any elective operation, for the same length of time one would take to prepare that particular pa-

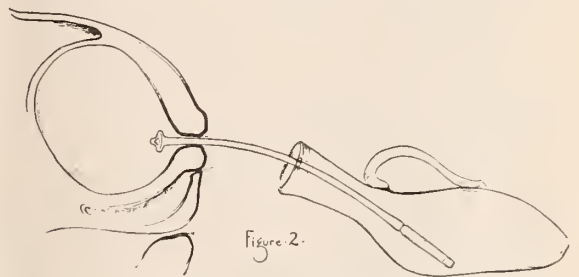


Figure 2. Retention catheter draining into the male urinal.

tient for prostatectomy. Cystoscopy is often useful here for an exact diagnosis. If the operation is an emergency one, an indwelling catheter or intermittent catheterization should be employed if prostatism exists.

Definition: Prostatism, miscalled prostatic hypertrophy, is an adenomatous or sclerotic condition of the prostate, causing obstruction in some degree to the outflow of urine through the urethra.

Etiology: (1) hypertrophied prostate; (2) sclerotic (atrophic) prostate, known clinically as BAR at the bladder neck or CONTRACTURE of the bladder neck.

Bilateral lobe hypertrophy and carcinoma can be palpated with a finger in the rectum, but hypertrophy limited to the middle lobe, as well as bar or contracture at the bladder neck (both of not infrequent occurrence) cannot be discovered by rectal palpation. The urine may be quite normal and palpation of the kidneys negative. A patient may have considerable residual

urine and still the laboratory may pronounce it quite normal. This patient is just as apt to have a severe reaction and stormy convalescence (perhaps a fatality) as the patient with infected urine, and if the residual is great in amount he is an even poorer immediate operative risk. Therefore, patients about to be operated on for hemorrhoids, hernias, cataracts, abdominal disease or any other condition arising in men past 50, should always be catheterized before operation. If catheterization causes a reaction or an infection, there is almost invariably urinary pathology which may require regular catheterization or an indwelling catheter, and the sooner it is instituted the less danger to the patient.

Be on the lookout for tabs in the diagnosis of prostatism.

URINARY ANTISEPTICS AND DIURETICS

Routinely the best diuretics and at the same time the best urinary antiseptics are those agents which produce dilution and polyuria.

A. Diuretics

1 Fluids by mouth

Water

Lemonade

Tea and coffee—hot or cold as desired by the patient

Fruit juices

Buttermilk

Bottled milk alkaline mineral waters—still or carbonated

Flax-seed tea

2 Introduction of fluids in other ways

a. Hypodermocystis

b. Introduction of fluids through duodenal tube when it can be made

to pass is unsurpassed as a diuretic
c. Rectal drip

d. Intravenous administration

3 Sodium citrate, 30 grain doses dissolved in water—25 percent edly diuretic, an alkalizer, and very efficient in urinary infections. There is perhaps some danger of secondary hemorrhage if given post-operatively. It is probably our most efficient all-round diuretic among the pharmaceuticals.

4 Diuretin and theocin should always be given by Murphy drip or through duodenal tube because of the intense nausea and gastric disturbance they produce in considerable dosages.

5 Digitalis and epinephrin in cardiac weakness, decompensation or dilatation and lowered blood pressure.

B. Urinary Antiseptics:

1 Relief of urinary stasis, with the consequent residual urine and back pressure therefrom. Establishment of drainage, removal of calculi, forming bodies, obstructions, diverticula or neoplasms, anywhere in the genital tract if any such exist.

2 Locally the use of silver salts, acriflavin, potassium permanganate, etc.

3 Hexamethylenamin is of doubtful value and a frequent cause of vesical irritability and slight hematuria; occasionally it apparently gives wonderful results but more often is harmful and irritant, frequently causing mild hematuria, especially in tuberculous bladders and in acute cystitis.

STRICTURE OF THE URETER

WILLIAM ROSS JAMIESON, M. D.

EL PASO, TEXAS

(Read before the Medical & Surgical Association of the Southwest, at its tenth annual session, held at Phoenix, Ariz., Nov. 6 to 8, 1924.)

Thru the light shed on the subject by urologists, particularly Hunner, in the last ten years, stricture of the ureter has become a recognized clinical entity. It is a factor to be reckoned with in the diagnosis of conditions of the abdomen and pelvis, especially those of the right side. There are few surgeons or gynecologists who cannot remember cases in which the diagnosis seemed absolutely to point to the appendix, the tube, or the gall bladder, but on opening the abdomen, nothing was found to justify the operation. Braasch says that at the Mayo Clinic at least 50% of right-sided ureteral and renal lesions had had previous

pelvic operations. Hunner says the percentage is even higher. Sanes' says that the failure to recognize ureteral obstruction is due chiefly to a variety of causes, principally secondary urologic changes and the anatomic relations of the ureter to adjacent organs. The appendix is most commonly involved in diagnostic errors, with the female organs a close second, on account of their intimate relation to the ureters and to the exacerbation of ureteral disturbances during menstruation. Disturbances caused by ureteral affections are often incorrectly attributed to diseases of the colon, rectum, ileum and seminal vesicles.

In 1902, Kelly defined stricture of the ureter, properly so-called, as a narrowing of the lumen of the ureter produced by an affection of the ureteral walls caused by inflammation by pyogenic bacteria, the commonest being tubercle bacillus and the rarest gonococcus. As late as 1910, Bottomley² contended that this condition was very rare and of congenital origin. In 1912, Furniss³ emphatically stated that these strictures were for the most part of inflammatory origin and ascribed them to infection arising in some focus in the body with consequent infection of the kidney by the hematogenous route, persisting in the urinary tract as a pyelitis, ureteritis, or a secondary cystitis with infiltration of the ureter.

LOCATION

Hunner⁴ found the stricture to be bilateral in 50 cases, on the right side in 31, and on the left in 19, in a series of one hundred cases. He makes the assertion that this condition is practically always a bilateral disease. "The great importance of this observation lies in the fact that not infrequently a complete investigation reveals the more damaged kidney on the symptomless side. Not infrequently the side with symptoms may present a large hydronephrosis, and the symptomless side a smaller hydronephrosis or a kidney pelvis smaller than normal, while repeated functional tests show that the side with symptoms is doing the major portion of the work." His figures show the favorite site of stricture to be (a) Within 6 cm of the orifice, (b) from 7 to 11 cm. above, (c) multiple and diffuse, the greatest number being in the first class. As his work is confined to female urology, it shows that the most strictures were found in the broad ligament region, or in proximity to the glands about the uterine vessels, with a preponderance of cases on the right side. The region from 7 to 11 cm. above the orifice is in proximity to the glands of the anterior iliac vessels, and in this part the number of strictures was practically even.

ETIOLOGY

Rathbun⁵ divides the factors into several groups. First, those cases where there has been a direct extension of the inflammatory process from the neighboring organs, such as the bladder, broad ligaments and tubes, the seminal vesicles, the sigmoid, and the retrocecal and pelvic appendix. This infection takes place either by direct contact or thru the lymphatics. Another group includes those cases caused by trauma inflicted at such abdominal operations as hysterectomy, removal of intra-

ligamentous cysts, etc. A third group represents the scars left after one or more attacks of pyelonephritis and ureteritis, many of which occur and pass unrecognized in infancy. The fourth group includes blood borne infections from remote foci of suppuration, and the fifth comprises the congenital narrowing noted at the ureteral orifice or other portion of the ureter.

Bumpus and Meisser⁶ presented a series based on cases representing subacute lesions of the urinary tract with dental and tonsillar sepsis and *B. coli* predominating in the urine. Not only were they able to produce in the majority of animals injected definite renal lesions from cultures taken from the teeth and tonsils, but in two cases, showing marked exacerbation following tooth extraction, they were able to recover streptococci from the urine, which, when injected into animals, produced lesions of the urinary tract identical with those obtained from cultures of the teeth, showing that the streptococcus isolated from the teeth and tonsils manifests a marked affinity for the urinary tract. Of 26 animals injected with primary cultures, 24 had lesions of the kidneys and bladder. They were unable in those patients whose urine showed *B. coli* to produce any definite renal lesions by intravenous injection of cultures from this source. Of the cases represented, 42% had diseased tonsils, 22% had apical abscesses corroborated by x-ray, 14% had both teeth and tonsils diseased, 4% had sinus involvement, while 18% had no definite focus.

Herbst and Thompson⁷ state that infections spreading from the seminal vesicles and prostate may reach the ureter and produce occlusion and later stricture, the condition being often unrecognized on account of the predominance of the symptoms in the genital tract.

PATHOLOGY

It is fair to suppose that, preceding the formation of a stricture, there is a ureteritis with round cell infiltration and fibrosis as the process goes on. In some cases the inflammation may come from contiguous structures and be limited to peri-ureteral tissue. Sugimura⁸ studied the lower end of the ureters in the bodies of 25 patients with cystitis, dying from other causes, and in all found changes of an inflammatory type in the submucosa and muscularis. He expressed the opinion that the inflammation extended along the lymphatics and not the mucosa.

SYMPTOMS

The principal symptom and the one for which the patient usually seeks relief is

pain. This may be constant or intermittent, varying from a dull ache to the severest renal colic. It radiates upward along the course of the ureter to the kidney, to other abdominal viscera, to the genitalia and the extremities, particularly the anterior and inner side of the thigh. Backache is a more or less constant symptom, often of a type to make the patient's life almost unbearable. Frequency of urination, with or without bladder symptoms, is a constant symptom, and may be the only evidence of a stricture. The frequency is diurnal and nocturnal, and may be accompanied by urgency, tenesmus and hematuria when there is edema of the urethra. Bladder manifestations varying from discomfort to pain may appear intermittently, due to trigonitis or urethritis. There are cases where the findings do not account for it, and the pain is ascribed to the so-called "bladder neurosis." Gastro-intestinal disturbances such as flatulence, nausea, vomiting and colitis are seen in some cases are frequently accompanied by headaches of the migraine type.

Slight uremic symptoms such as headache, nausea, vomiting, depression, coated tongue, and a small rise in temperature are sometimes seen and may suggest typhoid. When, for some cause or other, the stricture closes sufficiently to prevent the passage of the infected urine, chills and fever, even hyperpyrexia, are seen. This phenomenon is also seen in cases in which the urine is sterile and only one kidney is affected. Physical examination reveals a tenderness on first percussion over the involved kidney, the tenderness extending down the ureter. The kidney is enlarged according to the degree of hydronephrosis, but it is to be remembered that the kidney may be atrophied instead of enlarged.

DIAGNOSIS

The urinary findings in these cases vary from a purulent secretion with casts and albumen, full of bacteria, to a sterile urine with a few white blood cells and perhaps a trace of albumen. Tender spots may be elicited in either sex by pressing deeply one inch to either side of the umbilicus on a level with the brim of the pelvis, and per vaginam on the lower end of the ureter in women. Pressure on the kidney may give a desire to urinate. Insertion of a catheter to the face of the stricture or beyond it is followed by a steady stream of urine suggestive of the release of a hydronephrotic reservoir, in contrast to the normal flow of approximately 17 drops a minute. A definite diagnostic sign is the extreme pain elicited when the catheter passes the stric-

ture and which may be followed by free bleeding. Pyelography furnishes the surest way of making a diagnosis. For this I prefer sodium iodide (20% solution) injected to the pelvis of the kidney. After a picture is taken, the patient is raised to a semi-reclining posture and as the catheter is withdrawn the solution is injected into the ureter and another picture taken.

To differentiate between appendicitis and the pain of ureteral stricture or stone, it is well to remember the following points:

1. Absence of marked right-sided rigidity in retro-peritoneal lesions.
2. Hyperpyrexia points to infection of the kidney pelvis, rarely to the appendix.
3. The sequence of symptoms in appendicitis as laid down by Murphy, viz:
 - (a) pain, (b) nausea, (c) vomiting, (d) elevation of temperature.

EFFECTS OF STRICTURE

It is only natural to suppose that the consequence of occlusion of the ureter would be dilatation of the kidney pelvis. On the other hand, there are quite a large number of cases with contracted pelvis, and even atrophy of the parenchyma. Barney¹ explains this as follows: When obstruction occurs suddenly, there is a marked distension of the ureter and renal pelvis with pronounced increase of intrarenal tension. The parenchyma shows intense hyperemia and edema and since it cannot expand within the inelastic capsule, intrarenal pressure becomes so elevated that the venous capillaries of the parenchyma become obliterated. However, if the compensatory venous circulation through the capsule is sufficient, then there is a balanced blood supply with continued urinary secretion and developing hydronephrosis. If this accessory venous circulation is not maintained, then the pressure within the kidney becomes so great that it not only produces venous stasis but arterial capillary obstruction with cessation of secretion and resultant atrophy.

With infection of the urine retained in the kidney pelvis, there may ensue pyelonephritis, pyonephrosis converting the kidney pelvis into a large sac and destroying the parenchyma entirely.

Stones may form at the point of stricture. This I had impressed upon me a few weeks ago when I operated on a young woman who had a stone the size of a fingernail and roughly triangular in shape. Dilatation of the ureter failed to dislodge it and on operation the reason was plain as the stone was so tightly wedged in the stricture that it could not be moved either up or down.

TREATMENT

Dilation of the stricture thru a cystoscope, beginning with the largest bougie that will pass thru the stricture and gradually increasing to 15F or more. Sometimes the smallest bougie will not pass, a condition which may be due not so much to the stricture as to the spasm of the ureter from instrumentation. A few drops of butyn or 2% novocain is often sufficient to relieve this spasm. Again the stricture may be of such small calibre that the smallest bougie will be obstructed. If the bougie is left up against the face of the stricture, or better still, if another is passed up alongside of the first and left for a time, it is often possible to pass the constriction.

Hunner uses a wax bulb on an ordinary catheter and inserts it thru a Kelly cystoscope. Unfortunately, few of us are able to handle this instrument with the dexterity he displays. The wax bulbs are of various sizes, but beyond a No. 9 will not pass thru the ordinary Brown-Buerger instrument.

The pain after dilation is often quite severe and may require opiates, but can usually be relieved by hot baths or hot water bottle. To prevent an exacerbation of infection either at the site of the stricture or in the renal pelvis, some urinary antiseptic should be given as a routine measure. I prefer the enteric coated pill of neutral acriflavin.

CONCLUSIONS

1. In every case of abdominal pain, particularly of the right side, the possibility of stricture of the ureter should be considered.

2. When pus is found in the urine, a cystoscopic examination with pyelograms if necessary should be made to determine the source.

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DISCUSSION OF PAPERS BY DRs. DAY AND JAMIESON

DR. CHARLES S. VIVIAN, Phoenix, Ariz. (Opening):—To discuss these two papers in five minutes is fruitless, but I can say a few things, perhaps. Dr. Day has covered the entire subject very fully; sorry he didn't say anything about gonorrhea.

There is one thing I want to emphasize and

that is you can't infect a healthy bladder by a catheter. I have told a lot of people this, but they don't believe it. I am glad to hear Dr. Day confirm this.

The preparation of old men for surgery is an important point. These old fellows have very little margin of safety in the kidney, and when you subject it to the trauma of surgical procedure, it is usually more than they can bear, and they go out, as Dr. Day says in uremia.

(At this point Dr. Vivian showed a number of slides of pyelograms, illustrating various types and degrees of ureteral stricture, with comment on the clinical features of each.)

I was glad to hear Dr. Jamieson speak of acriflavine. When it was first spoken of in the Journal of Experimental Medicine some four years ago, I began to use it as an urinary antiseptic. I gave it in grain doses with four grains of soda bicarbonate. If the patient happened to vomit, of course he was beautifully painted, but otherwise it did a lot of good. It is a very good urinary antiseptic.

And now we have the Keratin coated pills. I remember a nurse once told me very excitedly that one of my patients had passed a stone. I said "Is that so? That's fine." It was one of the Keratin coated pills. She had passed it all right, but not through the urine.

DR. S. H. WATSON, Tucson, Ariz.:—I want to comment on one thing Dr. Day said, that wherever tuberculosis is found it is a general disease and not a disease of that particular part; you practically always have the disease. You know there are no symptoms, but you have it. The worst thing about the operation is that the patient assumes that is all there is to be done—all that will be necessary. I think all of these cases may be cured by the proper general treatment, including rest, heliotherapy, etc.

DR. C. A. THOMAS, Tucson, Ariz.:—I would like to add one word about catheterization. I think to be safe this should always be done before the bladder is too badly distended.

I am not going to attempt to discuss these papers as I think they cover the entire field, but I would like to emphasize one thing and that is the differentiation in diagnoses in abdominal conditions. I have been humiliated more than once by having patients return where I had removed the appendix, and have it pointed out to me that he had a stone in the ureter or a stricture; this would be relieved and the patient would be all right. I think the differentiation should be made very distinctly before we go into operative procedure.

We have this type of thing in Tucson, which I think would apply to the whole society. Frequently our patients develop a marked pain, it is very easy to jump to conclusions and operate, when really it has some other source altogether.

DR. W. R. JAMIESON:—I would like to tell you about a case that several of you men already know about, Dr. Lynch, and several others.

This man was taken sick one Wednesday. He noticed quite a lot of blood in the urine; he thought nothing of that; two days later he noticed some more; Friday it appeared again, a great deal more than the first time. On Sunday he had another attack and passed quite a large quantity. On Tuesday I saw him for the first time, and on examining the bladder I found a long clot hanging out of the ureter. I passed a catheter up the ureter to the kidney and got almost pure blood. With all this the man's temperature jumped up to 106.

We took every possible precaution to prevent infection and, as customary, I used a solution of

mercury and was very careful to eliminate everything that might cause infection of the kidney. Several days after that he had a very severe renal colic, which lasted for quite a while. The colic passed away and the blood passed away; about Wednesday he passed about a pint of blood, the attack coming on suddenly. X-ray pictures showed a little enlargement of the kidney, but not much. I want to say this, however, that this man had been to Juarez and had been indulging a little, probably half a dozen drinks a day. He was in a position where he had to cater to the Mexican officials and was being a good fellow. It was decided to take the kidney out, and after we got in there we found it was injected with areas full of blood. We took it out, and Dr. Waite will tell you what it was like, and what we found.

With regard to acriflavine, I used it once in a case of a tuberculous kidney where I had taken out the right kidney, which was nothing but a pus sac; he had an infection of the left kidney and bladder. By way of an experiment I used it in-

travenously and afterwards injected it into the bladder; he said it relieved the bladder, or at least he said he felt a lot better. It may have been, of course, that there was some other infection and it killed off the mixed infection.

Dr. Day says that an ordinary specimen of urine isn't worth very much. However, I think in women, where the urine is apt to be mixed with the vaginal secretions, you are likely to get pus, and the only way there is to get it is through a catheter.

Dr. Waite will tell you about that kidney.

DR. W. W. WAITE, El Paso, Texas:—This kidney Dr. Jamieson speaks of was enlarged somewhat, but not greatly so. The surface had bluish spots, wedge-shaped. There was considerable hemorrhage of the kidney substance, and there were numerous round cell collections, in some places to such an extent that they were beginning abscesses. It could be classed as acute nephritis, with the hemorrhage coming apparently from the diseased areas.

ACUTE OSTEOMYELITIS

JAMES VANCE, M. D., F. A. C. S.,
EL PASO, TEXAS

(Read before the El Paso County Medical Society, at El Paso, Texas).

This subject is chosen for your consideration this evening, because of all the ills to which the body is liable, there is no condition which more fittingly requires emergency treatment. This malady is so insidious in its onset, yet so disastrous and quick in its widespread destruction, that it should be associated in every practitioner's mind as of equal importance with acute appendicitis and intestinal obstruction, for it requires equally as prompt and efficient treatment. In spite of this being true, there is perhaps, today, no equally serious condition which is so poorly understood and so often wrongly diagnosed as acute osteomyelitis. It is equally as important as intestinal obstruction, and more important than acute appendicitis, because a large number of acute appendicitis cases will spontaneously recover from any given attack, but acute osteomyelitis will never so recover, unless given immediate and adequate relief, without leaving such widespread injury to bone and limb that the victim is a cripple, or more or less incapacitated for life.

If correctly diagnosed and promptly treated, there would be no chronic osteomyelitis to worry about, so we shall purposely omit any discussion of the chronic condition so that we may the better fix our minds upon the all important acute condition. A chronic osteomyelitis or even a subacute condition is a badly mismanaged case, just as an appendiceal abscess is a badly mismanaged appendix case, with this great difference—that the appendiceal abscess can be safely and comparatively

quickly cured, while chronic osteomyelitis takes as many months or even years to cure as the neglected appendix case takes weeks. Added to all this the neglected osteomyelitis case is associated with ten times the suffering to the patient and ten times the expense coincident with the neglected appendix case.

Acute osteomyelitis is a blood infection of the medulla of a bone. It most frequently occurs in the long shafted bones, especially the tibia and femur, but may attack any bone in the body. It occurs most frequently during the greatest bone activity, that is in children and adolescents, though it is not particularly uncommon in adults and occasionally occurs in advanced life. Fifty per cent of cases are said to occur between 13 and 17 years of age. It is further said to occur three times as often in boys as girls, which strengthens the opinion that injury is often a major provocative factor to this dread disease.

In a very large percent of cases one bone only is involved, but rarely the infection may be multiple. The infecting organism is most generally the staphylococcus aureus, but the streptococcus, pneumococcus, and typhoid bacillus are sometimes found. Generally the infecting organism occurs in pure culture, but when mixed infection does occur the disease is particularly violent. Bone infection by the tubercle bacillus will not be considered in this discussion since it is slow in action and requires a different treatment.

The infection nearly always begins in the shaft of the bone near the epiphyseal

line. Here it is held in check for twenty-four hours, then spreads rapidly through the entire shaft of the bone along the medullary canal. The infection may then spread to the adjacent joint around the epiphyseal cartilage, but rarely through it because this cartilage forms a strong barrier to infection and shuts the entrance to the joint for from forty-eight to seventy-two hours.

When the products of inflammation exert enough pressure within the bone, the pus, following the systemic law of least resistance, makes its way through the Haversian canals and nutrient arteries to the periosteum. Pus usually begins to escape through the nutrient arteries to the periosteum at the end of seventy-two hours. The inflammatory process has always preceded pus formation by close to forty-eight hours, so that swelling of the soft parts over the bone lesion begins in twenty-four to thirty-six hours after the establishment of the infection within the bone.

The diagnosis is generally not difficult and though the condition is by no means rare, it does not occur sufficiently frequently to enable every physician to make a prompt diagnosis. Early diagnosis may occasionally be very difficult, but in most cases conditions presented are nearly as follows:

There is a history of slight injury, a recent exanthematous disease, or an acute febrile disease, especially influenza. There may be boils or other suppurative condition about the body. Frequently there is a history of a wetting with ice cold water, as falling through the ice while skating. Following within a week or so one of the above named conditions, there is a rather sudden onset of pain in one of the long bones, usually the tibia or femur, but the patient will refer to it as pain in the leg or thigh, the pain being as a rule very severe. The patient is sleepless and restless, and within twenty-four to forty-eight hours has a temperature of 102-104. Severe constitutional symptoms usually begin as early as 48 hours after the onset of the pain, the temperature frequently rises from 104 to 106 and the patient becomes delirious. The tongue is dry and coated, the face flushed with a drawn anxious look.

Usually in 24 hours after the beginning of the pain, the affected bone becomes painful to pressure over the site of infection and some slight swelling of the overlying soft parts has taken place. Both these symptoms have increased at the end of 48 hours, till the swelling of the soft parts is well marked and pain from steady pressure on

the bone even away from the point of infection is unbearable.

There are two important facts that must be remembered. First, the x-ray will not show a lesion in the bone until it is too late to save the bone. Second, the leucocyte count is not always high early in the disease, as shown in the case here reported, it being only 6700 with 75% polymorphonuclears on sixth day and only 13,100 whites with 80% "polys" on the eighth day of the infection, though the destruction to both tibia and ankle in this case was far advanced.

The following case is typical of the onset of the disease:

M. F., a little white girl baby not quite four years old, was perfectly well till Thursday afternoon, February 9th, 1924, when she is said to have hurt her left leg while playing with other children. Thursday night she slept all right but Friday complained of pain in her left leg and would not walk or bear any weight on the leg. Friday night she cried frequently during the night from pain in the limb. Saturday the pain was worse and that afternoon her temperature rose to 102. Saturday night the child cried bitterly from pain nearly all night and Sunday the temperature rose to 104 and some swelling of the left leg above the ankle was noted. Monday, the temperature ranged between 105 and 106, and the child was delirious all day. There was increased swelling of the left leg above the ankle till it was quite noticeable, especially on the tibial side. Tuesday and Wednesday all symptoms grew worse and the swelling of the leg extended to the ankle and dorsum of the foot. The child was wildly delirious and the temperature continued from 104 to 106.

Thursday, Dr. Craige was called, and ordered a blood count, x-ray and urinalysis to be made. The blood count showed only 7200 whites, and 75% polymorphonuclear leucocytes. The urinalysis showed both albumin and pus, but the x-ray demonstrated no bone lesion. Dr. Craige advised that a surgeon be called at once, but for some reason this was not done till the following day. This was Friday, February 15th, one week after the active onset of the disease, when the writer was first called to see this case. The child was unconscious, and profoundly septic. The pulse was 150 and the temperature 106. The whole left leg was swollen to the knee. The ankle and dorsum of the foot were especially swollen, with two angry red spots just below the external and internal malleoli. A dusky area extended from the red spot below the internal malleolus to well up beyond the lower epiphysis of the tibia. A blood count made that morning showed 13100 whites and 80% "polys."

The child was sent to the hospital at once and under local anesthesia, an incision was made over the lower end of the tibia down to the bone and from beneath the periosteum about four ounces of yellow pus escaped. The periosteum was found to be stripped away from the entire shaft of the bone and throughout its entire circumference. The ankle joint was then opened on both sides and pus escaped from both wounds. Through an error in judgment, the shaft of the tibia was not then opened it being supposed that the amount of pus beneath the periosteum must indicate free communication with the shaft of the bone. Free drainage was instituted and large moist antiseptic

tic dressings were applied and the little patient put to bed.

There was no abatement of symptoms within twenty-four hours, although there was free drainage from all three wounds. The tibia was then opened just above the epiphysis and about a teaspoonful of pus escaped from the bone, and this was followed by no abatement of the symptoms. In other words the infection was no longer local but was systemic even at the time of the first operation, but thinking that there might be a lack of free drainage, the tibia was opened up at various points throughout the entire length of the shaft, and the ankle joint was opened more freely on both sides. None of these operative procedures seemed to have the slightest beneficial effect on the child's pitiable condition, and there was no noticeable improvement for four weeks, then the child gradually improved, and was able to go home eight weeks after operation, with numerous discharging sinuses from the tibia and ankle joint. The child was still running a temperature of 100 to 101 every evening, but was taking nourishment freely and had shown great improvement.

With the idea of lessening the amount of septic absorption by removing the purulent dead shaft of the tibia, the child was sent back to the hospital, and on May 20th the entire tibia was removed from just below the upper epiphysis to the ankle joint, including of course the lower epiphysis, which was dead and loose. This procedure was done three and one-half months after onset of the disease, and was not done earlier because we wished the process of new bone formation to be well under way before the framework of the dead bone was removed. This process of new bone formation is not well advanced for something like three months after the death of the bone involved.

Various metastatic abscesses have formed in other bones of this child's frame. The first was noted in May, two and one-half months after the beginning of the disease, and occurred in the outer third of the left clavicle. Next, the right clavicle was involved at the same point was that in the left. This occurred just prior to the removal of the dead shaft of the tibia. Next the posterior border of crest of the ilium was bumped by the seat of a swing in the latter part of July. This blow was sufficient to produce a contusion and swelling and two weeks later the bone abscess developed. Then in the latter part of September, the final abscess to date appeared just above the lower epiphysis of the left ulnar.

Probably due to the acquired immunity developed in the child, all of these metastatic abscesses have quickly localized, and each was in turn opened and the dead bone curetted away with a sharp curette. These abscesses have so far healed rather kindly in from six to ten weeks.

By September 5th, a new tibia had formed, as shown by x-ray, that would easily bear the weight of the child, and she could now be walking were it not for a still existing (October 18, 1924) sinus to the inner side of the ankle joint. This probably leads to necrosed bone in the astragalus, which has recently been curetted and we hope will heal in time.

The child has now regained her healthful look and eats and sleeps well, but she will be more or less a cripple all her life.

The pus removed from beneath the periosteum and from the ankle joint at the original operation showed a pure culture of staphylococcus aureus.

It does not seem possible in this day and time that so typical a case of acute osteomyelitis could have been so neglected for a whole week as this case was, yet it did happen right here, and similar neglected cases have occurred and are occurring in other like communities, and this sad story is recorded in the hope that it will never again occur in this community.

The treatment is obvious when it is kept in mind that there is an infection within the bone, the walls of which are unyielding to the accumulating products of inflammation. Therefore the bone must be opened at the earliest possible moment. This should be done within the first twenty-four hours when diagnosis is possible. Do not wait for a certain diagnosis, because opening a normal bone will do little or no harm, and if the bone is infected you have done a great thing for that patient, because the intense suffering will be relieved and the bone will be saved and a comparatively quick easy recovery will result. If opened within the first 24 hours after the onset of symptoms, pus will generally not be found but that makes no difference because the opening in the bone makes a vent through which the accumulating products of inflammation will escape and the bone will be saved. Septic material will not be forced into the blood, as is the case when the bone is not opened, because the pressure within the bone forces both the poisonous inflammatory fluids and the invading bacteria themselves into the blood stream, which explains why these patients are so profoundly septic at the end of forty-eight to seventy-two hours.

It is not necessary to open the bone over the exact point of infection, though this of course would cause a quicker and easier recovery. All that is necessary is that the bone be opened and that promptly. It should be kept in mind that the infection nearly always starts near an epiphysis, and the bone should be opened at the tenderest pressure point that can be elicited.

If the bone is opened toward the end of forty-eight hours, pus will usually be found and the bone will generally be saved, and any case that is not opened within this time is a sadly neglected one.

The wound should be left wide open and dressed with abundant moist antiseptic gauze.

If these simple operative procedures are carried out early, there will be no chronic osteomyelitis, and no more sad cases to report like the one herein related.

St. Joseph's Hospital

PHOENIX - ARIZONA

Fulfills all the requirements of a Class A Hospital

Staff:—Physicians of Maricopa County belong to the "open staff;" other physicians may send or bring patients to the hospital, so long as the staff rules are adhered to.

Staff Meetings:—Are held each month from October to May. At these meetings, the clinical work of the hospital is discussed and means for improving the general service suggested.

Records:—The clinical records are compiled and filed in accordance with the requirements for Class A hospitals.

Clinical Laboratory:—Trained technicians work under the direction of a medical pathologist; all routine and special examinations required by modern clinical practice are promptly performed.

X-Ray Laboratory:—Every facility for x-ray diagnosis and high voltage x-ray therapy, this department being in charge of a competent roentgenologist.

With a specially trained dietician working in conjunction with the clinical laboratory, this hospital invites the reference of cases for metabolic studies, particularly diabetic patients requiring the determination of their carbohydrate tolerance and insulin requirements.

CORNER OF POLK AND FOURTH STREETS
(On Indian School Car Line)

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THE ARIZONA ANNUAL MEETING IN BISBEE

The Thirty-fourth Annual Meeting of the Arizona State Medical Association will be held in Bisbee, Ariz., April 16, 17 and 18. The last meeting in Bisbee was just thirteen years ago (1912). At that meeting the Association voted to have "dry" banquets in the future. Just to show what they think about this, the Cochise County Society, this year, have voted to hold the annual dinner in Agua Prieta, with a mescal cactus in the middle of the table. The Committee on Arrangements advise us, in confidence, that they have done this against their convictions, but out of deference to the well-known propensities of the Phoenix delegation.

The Chairman of the Program Committee, Dr. G. H. Fitzgerald, of Bisbee, has written the State Secretary that the program is "coming along." The sections of the program containing papers on tuberculosis and industrial medicine are about complete. It is expected that the March issue of this journal will carry the complete program for this meeting.

NEW MEXICO MEDICAL SOCIETY ANNUAL MEETING

The Forty-Third Annual Meeting of the New Mexico Medical Society will be held in Clovis, N. M., May 19, 20 and 21.

Arrangements now in progress give promise that this will be the best meeting the Society has ever held. The program will be largely by New Mexico men, though it is contemplated having some distinguished visiting men on the program.

It is now time for all county secretaries to complete their collections for annual dues for 1925 from all their members, so as to be ready to make a 100% report when they receive blanks from the Secretary of the State Society.

Those members of the State Society who are affiliated direct as "members at large" should send their annual dues of \$5.00 directly to the State Secretary (Dr. C. M. Yater, Roswell, N. M.), without further notice. Some have already done so.

Do not let us be tardy about these matters. If the New Mexico Medical Society is to function properly, every member should take an active interest in the meetings and attend them, whenever it is humanly possible.

Now, Doctors of New Mexico, set these dates down in your memories and reserve them for the Forty-Third Annual Meeting at Clovis,—and do not forget to pay your dues NOW.

C. M. YATER,
Secretary.

MRS. E. S. BULLOCK

The Secretary of the Grant County Medical Society, New Mexico, reports the unexpectedly sudden death of Mrs. E. S. Bullock, wife of the veteran director of the Cottage Sanatorium at Silver City, whose friends throughout the Southwest will extend sympathy in his bereavement.

Mrs. Bullock has been known to have arteriosclerosis, but the attack which immediately preceded her death was unexpected. She was buried in the Masonic Cemetery, at Silver City.

DR. WILLIAM ARNOLD GREENE

In the death of Dr. Wm. A. Greene, of Douglas, Ariz., on December 15, 1924, one of the pioneer physicians and surgeons of the state passed. Dr. Greene came to Bisbee, Ariz., in 1891, as surgeon for the Copper Queen Company, and from that time until his death, he was a leader in the professional and civic life of Cochise County. One of the organizers of the Cochise County Medical Society years ago and one of the founders of the Kiwanis Club of Douglas, his life spanned many years of activity and usefulness. The following article from the Douglas daily paper gives a survey of his accomplishments and place in the community:—

Dr. William Arnold Greene, mayor of Douglas from June 1, 1908, to May 31, 1910, first president of the Douglas Kiwanis club, an early resident of Douglas and the southwest, and a beloved citizen, died at his Ninth street home yesterday afternoon after an illness of several months during which he had been confined to his home.

Funeral services will be conducted Wednesday afternoon at 3:30 o'clock from the Episcopal church under the auspices of the lodges of which he has been a member for many years. Dr. Greene was a member of Mount Moriah Lodge No. 19, F. and A. M.; past high priest of the Keystone chapter of R. A. M. No. 9, Arizona, and a member of Douglas Lodge of Elks. He was one of the founders and the first president of the Douglas Kiwanis club, the organization of this club being one of his last public services before his illness.

Dr. Greene was born at River Point, L. I., June 1, 1869. He started the study of medicine at an early age and gained his first knowledge of the profession as an apprentice in the office of practicing physicians. He came west when 22 years old and in 1891 settled in Bisbee, being at that time the surgeon for the Copper Queen.

Since coming to Douglas, Dr. Greene interested himself at all times in the welfare of the community, being throughout his residence here closely connected with the city administration. He drafted many of the rules under which the present health department works and prior to his election as mayor he was for two years a member of the city council at the time William Adamson was mayor.

Dr. Greene married Miss Adeline Slaughter, the daughter of the late John Slaughter, a pioneer Arizonan and the owner of Slaughter's ranch, near Douglas, with which is connected so much of border history. Three children, John Slaughter, William Arnold, Jr. and Adeline Howell resulted from this marriage.

Flags on all city property and public buildings of all kinds throughout Douglas were lowered to half staff yesterday by order of Mayor Hinton. Expressions of regret at the passing of the physician were heard throughout the city from men, women and children.

FOUR SURPRISING RULINGS IN A MALPRACTICE SUIT

In the recent malpractice suit against Drs. Clyne and Callender, news note regarding which is printed elsewhere in this issue, there were some very surprising rulings on points of law by the presiding judge.

Some of these deserve thought, for the lessons which they bring us, regarding the importance of protection against such suits.

The first ruling was on the application of our Arizona statute regarding privileged communications. The plaintiff was permitted to give in detail an account of her visits to two doctors of Tucson, to whom she told her symptoms; she recounted what she told them, what they told her, what medicines they gave her and the effect of their treatment. Yet when these doctors were called as defense witnesses, the presiding judge held that the privilege had not been opened by the plaintiff's testimony, and the valuable testimony of these doctors for the defendants was not available.

The next ruling was upon the applicability of the legal principle of *res interlocitur* to this case. Dr. Clyne was the plaintiff's family physician; she inquired of him regarding the advisability of x-ray treatment for eczema on her leg; Dr. Clyne referred her to Dr. Callender who was, thereafter, her doctor for this condition. Dr. Clyne was sued jointly with Dr. Callender, on the ground that since he referred her, he was jointly liable with Dr. Callender for the results of the treatment. The judge overruled the motion to dismiss the action against Dr. Clyne, and held that the principle of joint liability was applicable.

The third ruling was upon the admissibility of the expert opinion of an osteopath regarding the results of medical treatment. The plaintiff had an affidavit from a certain "Dr. Scott," who is an osteopath, but holds an "M. D." degree from the Pacific Medical College, a fraudulent concern in Los Angeles, not recognized as a medical college by the American Medical Association. The affidavit was to the effect that the witness is an expert in x-ray, and that the lesion on the plaintiff's ankle was an x-ray burn. Defendant's attorneys asked for a ruling on the admissibility of the testimony of an osteopath in a suit for medical malpractice, intending to impeach the qualifications of the witness as a medical practitioner. The presiding judge, however, ruled unhesitatingly that an osteopath could qualify and testify as an expert in this case.

The fourth ruling hinged upon the third. Since the testimony of the osteopath was absolutely the only expert evidence presented that the lesion on which suit was brought was an x-ray burn, the defendants argued for a dismissal, on the ground (1) that no expert evidence had been presented that the lesion resulted from any treatment given by Dr. Callender; having admitted the de-

position of the osteopath, the judge, of course, had to deny this argument; (2) no testimony whatsoever having been presented that the defendants were ever guilty of negligence, carelessness or lack of judgment in administering treatment, and that the result of treatment, in itself, unsupported by collateral testimony, is not evidence of malpractice, dismissal was sought. This motion was over-ruled by the presiding judge, who held that it was for the jury to decide for themselves whether the result of treatment was evidence of poor judgment. This is a direct reversal of the universal ruling in such cases, which is to the effect that the plaintiff must **prove** negligence or carelessness in treatment, and the burden of proof is **not** on the defendant.

We had, therefore, a case in which, according to the ruling of the judge,

(1) A doctor referring a case to a specialist is jointly liable with that specialist for the results of the treatment.

(2) The results of the treatment can be presented to the jury without any supporting testimony, for the jury to decide whether the doctor was negligent or not.

(3) The opinion of a non-medical "cultist" is acceptable as expert testimony, regarding the outcome of a medical or surgical procedure.

These rulings are interesting for the sidelight they throw on the attitude of some intelligent members of society toward the practice of medicine. Fortunately they had little effect with the jury in this instance, as they brought in a clear verdict for both defendants in ten minutes. Had their verdict been adverse, the case would undoubtedly have been reversed in the Supreme Court on any of the four rulings mentioned above.

The lesson to be learned in this case is the necessity for defense by attorneys thoroughly versed in the decisions in medical malpractice cases. The only weak point in the defense of this case was the failure to inundate the presiding judge with decisions of exactly parallel cases, so that he would have hesitated to rule exactly opposite to the universal decisions in other courts throughout the country. It is the function of the Defense Committee of the State Association to have these decisions on hand and available for any case. In other words, this case would have been strengthened by the participation of the legal talent of the State Association in the defense.

Very material assistance was given by the Secretary of the Arizona Association, who had been in correspondence with the Los Angeles County Medical Society about

this case and through Dr. Harlan Shoemaker, Secretary of the latter society, succeeded in preventing the securing of expert testimony from any member of that organization, on behalf of the plaintiff.

MARICOPA COUNTY MEDICAL SOCIETY

The first meeting of the new year was held at the Business and Professional Women's Club, on Saturday, January 3rd.

A dinner preceded the meeting. The attendance was not what had been expected.

Dr. Brockway, president, presided, and brought up many things pertinent to the society meetings for the coming year. The by-laws requiring that the first meeting should be one of business and ethics, this was adhered to in this case.

Dr. Bannister offered the following resolution, and presented it in writing to the secretary so as to be voted on at the next meeting: "Be it resolved, that that section and article of the by-laws of the Maricopa County Medical Society having to do with the number of meetings per month be amended to read, 'The Maricopa County Medical Society shall regularly meet on the first Saturday of each month.'"

Dr. Brockway brought up the advisability of bringing outside papers to our regular meetings, also whether we should meet at dinner first and whether we should meet again with the Ladies Auxiliary.

These topics brought out the following discussions and resolutions:

Dr. Harbridge thought that the County Medical Society, which is our own local branch, should not be secondary to hospital staff meetings or other medical activities more or less run by outsiders. To only have a monthly meeting of the Society because of so many meetings a month would boost other things at the expense of the only thing that was local.

Dr. Holmes thought that to change the meetings to only once a month would be out of harmony with the spirit of the meetings.

Dr. Shields said that the outside men seemed able not only to get to the meetings twice a month but to be on time when a 6:30 p. m. dinner was served.

Dr. Wilkinson thought we should meet at dinner once a month.

The Secretary thought that a better representation could be brought out with only one meeting.

Dr. Goodrich spoke of the multiplicity of meetings and thought that once a month is enough.

Dr. Wilkinson made a motion that the meetings be held once a month down town at a 6:30 dinner hour. Seconded by Dr. Goodrich. Dr. Smith offered an amendment that the rate be changed to \$2.00 so that we could be better entertained gastronomically, which would be an advantage for better attendance. The amendment lost. Motion carried.

Dr. Harbridge thought that local talent should be used as far as possible for papers, and that the spirit of the meetings should be one of mutual helpfulness, and that we had good talent if it could be induced to give papers. Dr. Holmes, with a ripe experience in getting papers, thereby asked men to volunteer papers. Drs. Harbridge, Brown and Smith offered to give papers when called upon.

The President believes that outside talent commands better audiences, simply because they are an attraction and a prophet is not without honor save in his own country.

Dr. Wylie said that we could give as good papers as any outsiders, but what was the use? It was of little value to advertise to local men who

already know your wares and limitations, whereas the man who comes from the outside could put lots of time on a paper because he believed it paid him something somewhere.

Dr. Brown made a plea for local papers.

Dr. Harbridge offered the following motion: "That local men be used as far as possible with only an occasional outsider." Dr. Brown seconded the motion. Carried.

Dr. Dameron made a motion that these things should be left to the President and Secretary to further determine. Dr. Holmes seconded the motion. Carried.

Mr. R. M. Philleo, Vice President of the Phoenix National Bank, made a well prepared talk on "The Extension of Credit."

Mr. Philleo said he likes the frankness with which our meetings are conducted; that we could give bankers a lesson that way. Mr. Philleo said that most of the time we are to blame for our accounts receivable; that they are worthless as security for loans after becoming ninety days old. He saw no relief for the medicos because of their code of ethics. He kept referring to the fact that our code of ethics made us poor bankers. He said our attitude was one of service but that we are the only profession that does not ask where and how payment is to be made by anyone who applies for our services. A banker would be lax in his duty or worse things should he take such an attitude. He said that banks would be glad to handle notes for physician depositors at a very small fee. He urged notes in all cases, especially when someone died. Also that small monthly notes could be collected through a series of notes which seems to be the way most Americans pay for anything they buy. He said that the banks ask for this business and to have the bank collect would leave the doctor in a better position with the patient. The attitude toward the first note generally determines the good will behind the signature.

Dr. Wilkinson moved a vote of thanks be given Mr. Philleo for his excellent presentation. Dr. Drane seconded the motion. The President instructed a rising vote.

Dr. Holmes spoke of "The Physician and His Hobby." In a witty vein he showed that hobbies cost money. His golf costs him about \$40 per game. Wild cat oil stocks, which is a hobby of most of us, costs more than that.

Dr. Carson spoke on "The Physician and His Duty Towards the Public." Dr. Harbridge continued this talk from the standpoint of the American Medical Association and the magazine "Hygeia."

Dr. Wylie spoke on "Medicine as a Profession."

Dr. Brown expressed his feelings in a short talk entitled, "Our Attitude Towards the Cults."

Dr. Drane read a paper on "The Physician in His Relation Towards His Brother Physician."

Those present were: Mr. Philleo and Drs. Clohessy, Smith, Goodrich, Felch, Thayer, Greer, Wilkinson, Harbridge, Shields, Carson, McNeil, Stroud, Wylie, Brockway, Bannister, Dameron, Drane, McIntyre, Brown, Schwartz, Thomas, Holmes, Bailey, Couch, Shelley, Martin (Glendale), Yandell, Franklin, and Dr. R. L. Penn of West Virginia, a visitor.

R. J. STROUD, Secretary.

MARICOPA COUNTY MEDICAL SOCIETY

The meeting of January 17th, 1925, was held in the basement of the Ellis Building, and began with a dinner at 6:30 p. m.

Dr. Brockway presided. The Secretary read the minutes of the last meeting, and a vote was

taken on Dr. Bannister's motion presented at that meeting. The motion was lost.

A motion was made that Dr. Thomas Cummings, a member in good standing of this Society, be transferred to the Santa Monica branch of the Los Angeles County Medical Society. The motion was seconded and passed. The Secretary was instructed by the chair to notify the Secretary at Los Angeles.

Dr. Couch discussed again the matter of bringing in foreign papers to stimulate attendance, and the Secretary was instructed to get in touch with outside talent as soon as possible.

The Secretary read a communication from Dr. Harbridge in relation to having us represented by men giving papers at the State Association meeting to be held at Bisbee in April. Dr. Fitzgerald has the program two-thirds filled and would like to finish the program as soon as possible.

A collection scheme was tabled on motion of Dr. Couch, so that the President and Secretary could look into its merits.

Dr. Wilkinson asked what the Society thought about donating towards a radio set for the Arizona Deaconess Hospital. No action was taken.

Dr. McIntyre made a motion that the Society take from its treasury moneys to reimburse the caterers for the deficit of the last two meals. Seconded and carried.

Dr. Harbridge read a paper on "Refraction." He made the statement that his paper was for the purpose of acquainting the general practitioner with some of the things about which he might be better off to know. He did not condemn the optometrists for their work, but said that many of the best of them had a wonderful knowledge of optics, and did good work. He rather criticised the oculist in that his practice being 65% refraction, it became more or less an onerous duty to measure eyes and the tendency was towards carelessness because of familiarity, and poor results which might go to the optometrist. When the oculist had the use of a mydriatic which the optometrist could not use and had such an advantage in its use the oculist should do such work that medical men would not be guilty of sending patients to optometrists, which they do at the present. Oculists sometimes fall into the error of always making glass the same as an optometrist. Some patients demand them anyway. He said that the "Horn Rim" was an obstacle to be overcome. People wanted them and demanded them. The breakage is less anyway in horn rims, but he maintained that the fittings were not adjusted perfectly.

Dr. Harbridge told how manufacturers of various varieties of glasses manufacture and ground their product, and the advantages and disadvantages of each. He had a plus and minus lens present to demonstrate movements which gave an idea as to the general way they worked. He told that the eye becomes more or less fixed at an early age and that the need of presby-optic glasses did not come until late. The change is gradual. Any sudden change should be looked at carefully for glaucoma or some other trouble.

Dr. Yandell in discussing the paper thought that the oculist's work was not well enough advertised to the public. Wanted to know how to correct the impression that oculists only treated eye diseases. Dr. Bailey said he had many patients say they were surprised when they found he fitted glasses.

Dr. Vivian read an excellent paper on "Impotence in the Male." This was nicely illustrated by lantern slides showing a lot of original photographs made from clay models of specific cases.

The question was presented very thoroughly and he had his notes ready for publication, which was a satisfaction to the Secretary and Dr. Wat-

kings. Drs. Brown, Jordan and the President entered into the discussion. The gist of the thing was that we are a heartless and cruel race of men when, as doctors, we tell the fellow who is impotent that he should go home and forget about it. He is a sick and wretched man who comes to us for advice and not platitudes. His mental suffering is enormous. We should not dismiss him lightly. (Send him to a specialist!) He should be examined to get at the seat of trouble. Gonorrhea stands at the head of the list of causes. Masturbation and withdrawal also are factors, as well as enlargements of the prostate and tumors of the posterior urethra.

These cases can and should be treated the same as any other medical condition. When this paper is published, it will be well worth the time to read it.

Those present were: Drs. Couch, Brockway, Felch, Harbridge, Watkins, Bailey, Wilkinson, Brown, Holmes, Shelley, McCall, Stroud, Phillips, Ellis, Yandell, McIntyre. Dr Victor Randolph was a visitor.

The meeting adjourned at 10:10.

R. J. STROUD, Secretary.

SANTA CRUZ COUNTY (Ariz.) MEDICAL SOCIETY

The annual business meeting of this society was held on Dec. 17th, 1924, at which time the officers for the past year were re-elected to serve for the ensuing year, as follows:

Dr. A. H. Noon, Nogales, president.

Dr. H. W. Purdy, Nogales, vice-president.

Dr. W. F. Chenoweth, Nogales, secretary.

Dr. A. L. Gustetter, Nogales, delegate.

Drs. V. A. Smelker, T. B. Fitts and H. W. Purdy, censors.

PIMA COUNTY (Ariz.) Medical Society

The regular monthly meeting of the Pima County Medical Society was held at the Old Pueblo Club, in Tucson, on January 13th. This was also the annual meeting for election of officers.

The meeting started late, as most medical societies do, and several matters of business came up for discussion; communications were read by the secretary and two applications for membership were referred to the censors. One of these was from Tucson's abortionist, and brought forth the motion that the Board of Medical Examiners be requested to consider the evidence available as proof that this practitioner's license be revoked.

The scientific program consisted of a symposium on "Kidney" and was presented by the members of the Thomas-Davis Clinic.

Dr. S. C. Davis read the introductory paper which described the physiology of the kidney and methods of determining its function.

Dr. Alvin T. Kirmse presented a paper on the importance of pyelitis and urinary infections in children, describing several cases in which obscure disturbances proved to be due to pyelitis. Repeated urine examinations should be the rule in every puzzling condition in children.

Dr. M. C. Comer described the changes which kidney involvement produces in the eyes, and the importance of linking up the eye findings with constitutional disturbances, particularly of the kidneys.

Dr. W. G. Schultz presented a detailed paper on urological lesions, illustrating by several well-written case reports and beautiful pyelograms.

Dr. C. A. Thomas presented a brief paper on surgical lesions of the kidney. These papers brought forth considerable discussion, and the meeting was a decided success.

The election of officers followed, resulting in the choice of the following:

Dr. S. C. Davis, President.

Dr. Victor M. Gore, Vice-President.

Dr. P. B. Newcomb, Secretary-Treasurer.

Dr. C. W. Mills, Censor.

Two or three visiting doctors were in attendance, among them Dr. Warner Watkins, of Phoenix, who was in the city as an expert witness on behalf of Drs. Clyne and Callender, whose suit was on trial.

W. W. W.

COCHISE COUNTY (Ariz.) MEDICAL SOCIETY

At the annual meeting of this Society, held in Bisbee in December, the following officers were elected for 1925:

Dr. Z. Causey, Douglas, president.

Dr. A. E. Cruthirds, Bisbee, vice-president.

Dr. C. H. Lund, Douglas, secretary-treasurer.

At the January meeting, held in Douglas on Jan. 10th, there was a good attendance. Dr. Z. Causey, the incoming president, read a paper on "Periodic Physical Examinations," which will be published in a subsequent issue of the journal. Several interesting case reports were presented and discussed. Plans for the forthcoming entertainment of the State Association were discussed. The society is preparing to give all those who are fortunate to attend a run for their money, and without having to stage a chicken fight to do it.

GRANT COUNTY (N. M.) MEDICAL SOCIETY

This society has not held a meeting since September last, until January 30th, 1925, when meetings were resumed. On that date, the society met in the Officers' Club at Fort Bayard, with Dr. E. S. Bullock, as chairman protem, in the absence of Dr. F. N. Carrier, acting president.

The paper of the evening was by Dr. Carl Hagen, of Silver City, N. M., on "Appendicitis with Some Unusual Features." The case reported contained some interesting features which are not frequently met with. The paper was discussed by Dr. L. L. Miner, of Silver City, who had seen the case in consultation, by Dr. F. J. Nordby of Fort Bayard and Dr. Carl E. Bosley, of Silver City.

As visitors, there were present Dr. D. B. Williams, Chief Division of County Health, Bureau of Public Health, and Dr. Osterhouse who has recently located in Silver City. Dr. Williams gave a short talk stressing some legislation necessary to the welfare of the Health Bureau, and which it is desired shall be enacted at the present legislature in session at Santa Fe.

The election of officers for the current year resulted in the choice of the following:

Dr. E. S. Bullock, Silver City, president.

Dr. S. T. Taylor, Fort Bayard, vice-president.

Dr. Bayard Sullivan, Fort Bayard, secretary.

Dr. F. J. Nordby, Fort Bayard, treasurer.

Dr. O. F. May, Fort Bayard, censor for three years.

Dr. W. D. Huff, Santa Rita, delegate to State Society.

Dr. F. N. Carrier, Santa Rita, alternate.

Dr. L. L. Miner, Silver City, State Committee on Public Policy and Legislation.

Dr. F. N. Carrier was appointed to represent Grant County on the State Governing Committee of the Gorgas Memorial.

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ST. JOSEPH'S HOSPITAL (Phoenix) ANNUAL STAFF MEETING

The annual dinner tendered by the Sisters of Mercy to the Medical and Surgical Staff of St. Joseph's Hospital, was held at the Arizona Club, Saturday Evening, January 31st. Thirty-five members of the staff and two or three visitors were present. After the dinner had been successfully disposed of, Dr. Wylie, the chairman of the staff, announced that the main business of the evening was the election of the staff officers for the ensuing year. He recalled that the staff had adopted, at the beginning of the year, an amendment to the by-laws which stipulated that only those staff members who had attended two-thirds of the regular meetings during the previous year would be entitled to vote and hold office. The staff members who had so qualified were as follows: Drs. Bailey, Brockway, Carson, Couch, Drane, Felch, Gudgel, Holmes, McIntyre, McLoone, Milloy, Mills, Schwartz, Shields, Smith, Stroud, Sweek, Thaver, Thomas, Vivian, Watkins and Wylie.

After some discussion regarding method of selection of the staff officers, the election resulted in the following officers:

Dr. Win Wylie, Chairman.

Dr. W. W. Watkins, Secretary.

Drs. Willard Smith, H. B. Gudgel, J. J. McLoone, Fred Holmes and G. M. Brockway, members of the Executive Committee. The amendment making the hospital pathologist a member, ex-officio, of the Executive Committee was adopted.

There was discussion regarding the taking of the personal histories of the patients, and motion was carried asking the hospital to provide a competent historian for this purpose, to take the personal history of every patient entering the hospital, supplement that which is already provided by the attending physician or surgeon, or taking the history complete, if none is furnished on entrance.

Motion was made and carried that the hospital be asked to cooperate in the securing of autopsies on all patients dying in the hospital.

A rising vote of thanks to the Sisters of Mercy for their hospitality was voted, as the meeting adjourned.

W. W. WATKINS,
Secretary.

MEDICAL AND SURGICAL STAFF OF THE ARIZONA DEACONESS HOSPITAL (Phoenix)

The regular January meeting of the Medical and Surgical Staff of the Arizona Deaconess Hospital was held January 24th with the following doctors present:

Drane, C. B. Palmer, Greer, Felch, Mills, Slaughter, Bailey, Randolph, Charvoz, Fattebert, Couch, Holmes, Schwartz, Wilkinson, Dameron, Vivian, Little, Goodrich and Brown.

The minutes of the last meeting were read and approved. The secretary reported that he had complied with the vote of the staff to invite all reputable physicians of the city not now members of the staff, to become members of the staff. One, Dr. H. H. Stone, had been heard from and he conveyed the staff his thanks and said he would be glad to comply and sign the staff book at his first opportunity.

Dr. Drane for the Medical team discussed Case No. 3353.

Female, American, 42; collapsed on pavement feeling acutely ill after leaving cafe having eaten oyster soup and was brought to hospital; skin pale; covered with cold sweat. hb. 89%; leuc. 5,200; polys 76; no pulse in wrist; after stimulants and heat, pulse 96, temp. 100, resp. 32; feels and looks much better; during night pulseless, nauseated and vomiting; pain in stomach; bright

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red stool; death 12 hours after admission. Autopsy; histologic examination of stomach and colon showed normal mucosa; colon much contracted by spasm; diagnosis internal hemorrhage (location undetermined).

Discussion: The autopsy added little or nothing to abstract given above. Dr. Drane said that poison and ruptured pregnancy would have to be considered.

Dr. Dameron said that indirectly he knew that this woman had suffered for a long time with high blood pressure. He said that he believed there was no reason to think poison played any part whatsoever.

Dr. Mills said that the fact that hemorrhage was not found tended to make the diagnosis of concealed hemorrhage incorrect.

Dr. Greer asked what causes might there be for such a low leucocyte count.

Dr. Goodrich says a hemorrhage gives a marked rise of leucocytes. Dr. Greer replied that his experience was that the leucocyte count may not rise rapidly after hemorrhage.

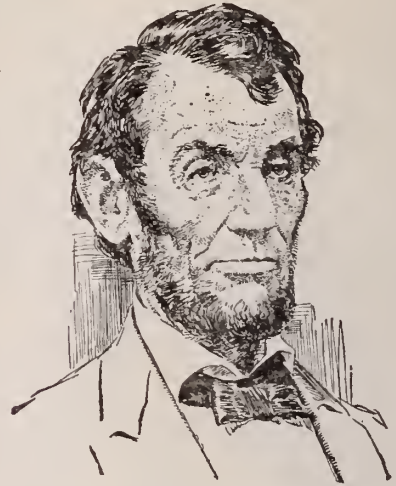
Dr. Brown said that it seemed to him that the case should have been one for a coroner's report.

Dr. Goodrich said that possibly the heart might have been the primary cause.

Dr. Felch reported a patient which he autopsied that gave a similar history and all that was found was a dilated heart with valvular vegetations. She had been seen by several men and no diagnosis made.

Case. No. 3383 was discussed by Dr. Greer of the Surgical Committee. The abstract follows:

Male, American, 8. sickly baby; subject to bronchitis in winters; pertussis and meningitis at three; tonsils and adenoids removed at five; ill



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and dedicated to the Proposition
that Professional Men
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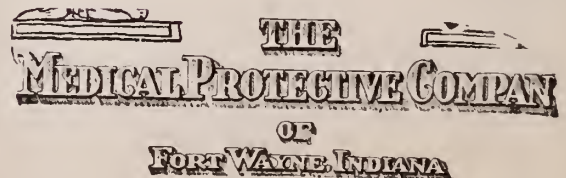
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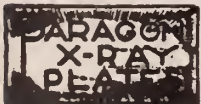
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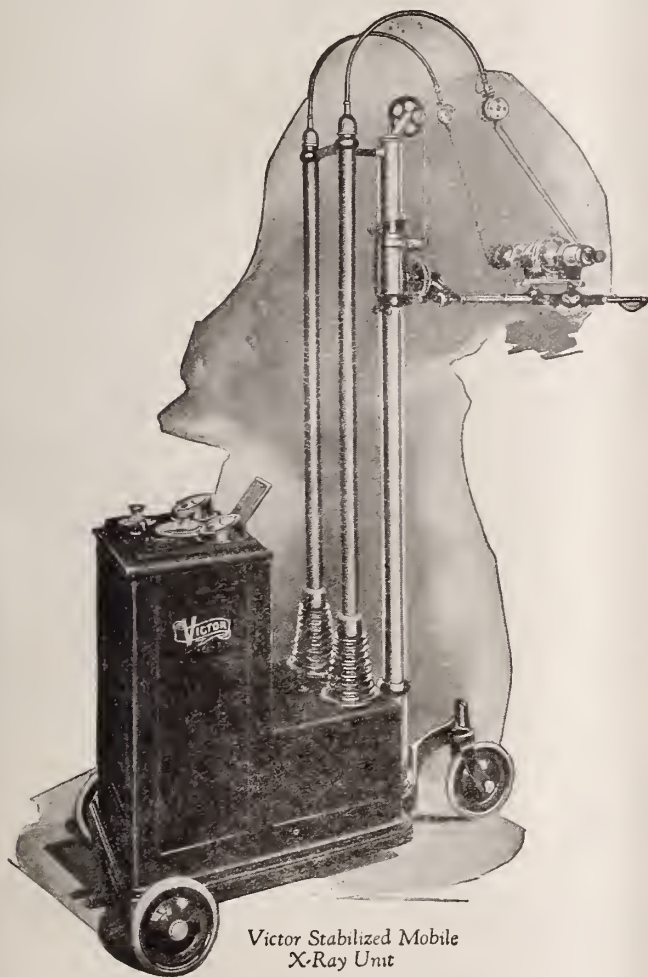


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two weeks with ear discharge before admission; therapeutic lamp treatments with apparent benefit; markedly tender mastoid; xray of mastoid showed pathology in cells; staph in ear discharge; leucocytes 11,000, 14,800, 27,000 before admission; urine 1,030; alb trace; acetone and diacetic acid, positive; mastoidectomy Dec. 18. hb. 82% leuc. 42,600; polys 85%; blood culture streptococci; spinal fluid 280 cells per cc with no bacteria on smear nor culture; blood culture grew streptococci; temp. 101 to 103.6; pulse 84 down to 58; restless and delirious; mercurochrome and antistreptococcic serum given without apparent benefit; no neurologic examination records; death sixth day after admission; no autopsy. diagnosis, mastoid infection; streptococcic septicemia.

Discussion: Dr. Greer went into detail in reading from the history and said that this was a very good history and that there could be no question about the diagnosis.

Dr. Greer asked about certain therapeutic procedures; why aspirin was given, why strychnine was given and what the dosage of antistreptococcic serum should be and why camphorated oil was given. He asked what results the men generally were getting from the use of mercurochrome.

Dr. Watkins said that he wished to discuss one question, i. e. the giving of antistreptococcic serum. He said that there is just one way to give antistreptococcic serum, and that is in large doses from 100 cc up to 500 cc or more per vein. This serum is not antitoxic but is bacteriolytic only. The first dose should be large; repeat often and in large doses.

Dr. Felch said he would like to ask what effect it would have on blood pressure to introduce such large amounts of the serum and whether it would do any good to withdraw blood first.

Dr. Bailey, surgeon who had been in charge of the case under discussion, said that he felt very kindly toward antistreptococcic serum as it had been administered to himself; it was the 100 cc doses which did him good.

In this case, however, this was a small boy and 25 cc seemed to be a fair sized dose.

Dr. Bailey said he saw no results from the mercurochrome.

Dr. Schwartz said he had seen this patient on third post operative day and that there were definite history and findings of meningeal irritation. Pulse was slow; Kernig was positive; neck was stiff. The findings pointed to a brain abscess. He regretted that he had not left records of his findings.

Dr. Bailey said that in looking up the literature on antistreptococcic serum he found that it was generally advised to use it in large amounts but not to expect too much good from it.

Dr. Holmes reported next on Case No. 3360. The abstract follows:

Female, white, American, age 18; typical history pulmonary involvement for 18 months or more; severe "smothering spells" at times; marked emaciation; flushed cheeks; lungs generally involved, findings however remarkably slight in comparison with general appearance; legs swollen and right tender over femoral vein; heart large, apex 12 cm from median line and in 6th interspace; abdomen generally tense, tender; urine neg; hb 48%; erythrocytes 3,080,000; leuc 20,200; polys 85%; Wass. neg; T. B. comp fixation two plus; stool 6-8 T. B. per field; on 13th day suddenly became irrational, apparently unable to talk, and partially comatose. consultations with records; blood pressure low; spinal fluid neg; fluoroscope shows marked amount pathology through both lungs; death 16th day; diagnosis pulmonary phthisis (Military T. B.) (Secondary organism played prominent part) (Encephalitis.)

Discussion: He said further that there was little of great interest about the case except the nervous seizure on the 13th day. The records were all fairly complete and to the point. The one point of special interest was why should the peculiar nervous manifestations have come. As there was no autopsy theorizing was futile.

Dr. C. B. Palmer reported on Case No. 3352 and said that as he himself had seen this patient in consultation, and he felt like saying the rec-

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ords failed to show the exact condition. Abstract of records follows:

White. American, age 35, male; developed sore throat on 10th; entered hospital on 12th; badly inflamed throat and tonsils; heart and lungs neg; (no other records of physical examination) slow progress on 14th; developed catarrhal condition of bile ducts 15th; throat culture on 12th contained strep and pneumococci; urine 1027 and alb pos. pus cells 8-10; 75% hb; leuc. 10,300; polys 89%; urine on 16th day contained bile; alb. trace and no leucin nor tyrosin; temp. went to 105; pulse 160, resp. 66; death on 7th day; breath and sputum very offensive. Diagnosis, Peri-tonsillar abscess and Catarrhal Jaundice.

Discussion: Dr. Palmer said the man had a septic pneumonia, even though the records failed to show it.

Dr. Watkins said that recently in his own family there had been a throat with Vincent's infection; these organisms do not grow on culture and hence the diagnosis must be made from a smear. He thought it possible that the present case might have been due to Vincent's infection, as pneumonia from Vincents-organisms often takes a turn similar to the case under discussion.

Case No. 3367 was reported very briefly by the secretary. The abstract of the case follows:

Female. American, 26, health generally had been good; tonsils large. Patient's signed statement says uterus packed three times during two weeks previous to admission to hospital and produced at least a partial abortion; during these two weeks developed fever and swollen painful joints; curettage on fourth hospital day; temp. 101 to 105, resp. 30 to 50; course stormy entire time; urine alb 03%; hyaline and granular casts. hb 50%; erythrocytes 3360,000; leuc 9,900; polys 67%; blood cultures first staphs then staph and strep; later strep only; Widal negative; mercurochrome, acriflavin and anitstreptococcic serum given repeatedly without apparent good; death 20th hospital day; no autopsy. Diagnosis, streptococcic septicemia.

Discussion: There was a general discussion on the question of abortion and what should be done about the professional abortionist. It was thought by some that the County Medical Society might take the question up with the State Board of Medical Examiners and with the County Attorney.

The hour for closing arrived and the meeting stood adjourned.

ORVILLE HARRY BROWN,
Secretary.

ANNOUNCEMENT

The Ninth Annual Clinical Session of the American Congress on Internal Medicine will be held in Washington, D. C., March 9-14, 1925.

Washington clinicians and investigators of attainment will devote the entire session to amphitheatre and group clinics, ward "rounds," laboratory conferences, lectures, demonstrations of special apparatus and methods, and the exhibition of unusual scientific collections. Civilian and governmental services are united in the aim to make the week useful and memorable.

Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session.

Address inquiries to the Secretary-General.

WM. GERRY MORGAN, Pres.,
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Frank Smithies, Sec'y-Gen'l.,
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THE AMERICAN ASSOCIATION FOR MEDICAL PROGRESS

The Friends of Medical Progress, a National Lay Organization incorporated in Boston, Massachusetts, in 1923 for the purpose of disseminating medical knowledge among the general public, is contemplating for the year 1925 a greatly extended program of service.

Office headquarters, formerly located in Boston, have moved to New York City, 370 Seventh Avenue, where cooperation with the more important educational and health organizations will be facilitated. With the change in location also comes a change in name. The society will hereafter be called the American Association for Medical Progress.


Mr. Benjamin C. Gruenberg, well known to workers in the fields of education and public health, will take over the active management of the organization.

In the past year approximately 72,000 publications dealing with various phases of animal experimentation, vaccination, etc., have been distributed. An increasing number of similar publications is planned for the current year. A lecture program will be developed and attention will be focused on the formation of branch organizations throughout the country.

NEWS NOTES

DR. ROY THOMAS, of Los Angeles, was a visitor in Phoenix the latter part of January, coming over on account of the serious illness of his father, Dr. John Wix Thomas.

DR. VICTOR SHELDON-SMITH, formerly with the Veterans' Bureau in San Francisco, is now stationed in Phoenix, with the Bureau for that district. He is a special consultant in surgical conditions.



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SUIT AGAINST DRs. CLYNE AND CALLENDER

The malpractice suit brought by Mrs. Heninger, of Tucson, against Dr. Meade Clyne and Dr. R. J. Callender, of Tucson, jointly, was tried on Jan. 13th. Damages for \$25,000 were sought for an alleged x-ray burn on the ankle. After two days' trial, case went to the jury who brought in a verdict for the defendants, after being out only ten minutes. Dr. Clyne was defended by an insurance company (Mr. Curley representing), while Dr. Callender was defended by the Medical Protective Company (Darnall & Campbell, attorneys). The plaintiff had no expert testimony except an affidavit from an osteopath in Los Angeles, who has a "fly by-night" medical degree. The defendants introduced expert testimony by Dr. Jeremiah Metzger and Dr. W. W. Watkins, as well as the testimony of the defendants and the statement of Dr. Frost, of Los Angeles, that this was probably not an x-ray burn, but a chronic ulcer or some chronic skin infection.

DR. DAVID L. FLANARY, an eye, ear, nose and throat specialist of St. Louis, well known to the medical profession of Phoenix, Arizona, is spending the winter months in that city. Dr. Flanary has been coming to Phoenix for the winter months for several years.

DR. JOHN E. BACON, of Miami, Ariz., was a recent visitor in Phoenix, where he was one of the principal speakers at the Arizona Industrial Congress annual meeting.

DR. JOHN WIX THOMAS, of Phoenix, Ariz., has been seriously ill with broncho-pneumonia, complicated by an empyema. The collection of pus was finally located and drained, and he is slowly convalescing. He will probably not be able to resume his practice for several weeks.

DR. VICTOR RANDOLPH, formerly of San Francisco, has located in Phoenix, Ariz., where he will be associated in practice with Dr. Fred Holmes, in diseases of the chest, with offices on the fourth floor of the Goodrich building.

DR. EDGAR H. BROWN, an orthopedist in Los Angeles, has located in Phoenix, to be engaged in the practice of his specialty. He has offices on the sixth floor of the Goodrich Building.

DR. GEORGE SHIELDS, formerly of Lichton, Ariz., has moved to Yuma, where he will be located in general practice in the future. His work in Lichton has been taken over by DR. R. L. PENN.

DR. E. E. MANSFIELD is now located at Sacaton, Ariz., in the U. S. Indian Service.

Fellow executives, department heads and representatives of the sales staff of E. R. Squibb & Sons on January 3rd, at the Hotel Commodore, New York, participated in the celebration of the twentieth anniversary of the association of Vice President Theodore Weicker with the House of Squibb. The feature of the happy event was the presentation to Mr. Weicker by President Carleton H. Palmer, on behalf of those present of a rock-crystal service set with a center piece of old English spode ware. Although taken by surprise, Mr. Weicker, who had already addressed the members of the Squibb Go-Getter Club, who had contributed the most consistent and constructive service during the year past, was quite equal to the new demand. His graceful response was another convincing demonstration of the genuine inspiration and kindly consideration he has extended to his co-workers throughout the years that he has sturdily maintained the sterling principles of the

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The presentation of rewards to the fifteen representatives of the sales staff who had qualified as the key Squibb Go-Getters during 1924, was another interesting feature of the program. R. D. Keim, director and general sales manager, acted as toastmaster at the banquet and presided at the reception which followed.

GRANT COUNTY (N. M.) NEWS ITEMS

DR. W. R. ABBOTT, formerly Clinical Director of the Veterans Bureau Hospital at Fort Bayard, has retired from the service and is now in private practice in Chicago.

DR. ALBERT MARTIN, of the Veterans Bureau Hospital at Fort Bayard, has been transferred to Camp Kearny, Calif.

DR. L. B. ROBINSON, of the Veterans Bureau Hospital at Fort Bayard, has been transferred to Dallas, Texas, and will leave soon for duty at that place.

DR. O. J. SCHMIDT, of Fort Bayard, N. M., has moved to Minnesota, where he is in private practice.

DIPHTHERIA EPIDEMIC IN GRAHAM COUNTY

About the middle of October, diphtheria appeared in one of the schools in Thatcher, Ariz. Dr. Dr. W. E. Platt, the County Health Officer, realizing the gravity of the situation, immediately began immunizing all contacts with antitoxin. He also seized the opportunity and capitalized the sentiment in the community, to the end that all the school children of that county might be immunized against diphtheria. Beginning with the schools in Thatcher, he continued the work until practically every school child under twelve years of age in the county has been immunized with toxin-antitoxin. Also all older children (over 12 years) who reacted to the Schick test, have been immunized. Dr. Platt reports that there have been about one hundred cases of diphtheria since October 15th, and that he has immunized with toxin-antitoxin about 1650 school children and adults who proved to be non-immune. None of the children who received antitoxin developed diphtheria; several who received toxin-antitoxin contracted diphtheria before sufficient time had elapsed for immunity to develop (this requiring about three months). Four or five children who reacted negatively and were classed as immune developed diphtheria. This led him to abandon the testing by Schick tests, and to immunize all children under twelve years of age. The negative reactions may have been due to imperfect technic, to improper interpretation of the reactions, or to the fact that the children were on the borderline and were only partially immune, unable to resist an overwhelming infection when exposed to it. This is one of the most comprehensive and valuable pieces of public health work which has been performed in Arizona, and Dr. Platt is to be congratulated in carrying it through and on the co-operation which he was able to secure in his county.

MANY CHANGES IN GOODRICH BUILDING Phoenix, Ariz.

With the completion of the two additional stories on the Goodrich Building, several physicians and surgeons have moved into the structure; others have changed location and enlarged their quarters in the building. It is now occupied almost entirely by physicians and dentists. Proximity to the Pathological Laboratory makes locations in the building very desirable. The Laboratory occupies the entire third floor of the older portion of the building, connecting by a short

flight of stairs with the third floor of the main building. The Laboratory did not move its quarters, but will make some interior changes which will facilitate the handling of x-ray cases, and will shortly complete the installation of new diagnostic equipment costing about \$5,000.

Drs. Martin & Schwartz have moved from the second floor to the sixth floor, where they have larger and more conveniently arranged quarters.

Dr. W. W. Wilkinson has moved from the second floor to the fourth floor.

Dr. Fred Holmes has moved from the second floor to the fourth floor, and has associated with him in his specialty of chest diseases, Dr. Victor Randolph, recently from San Francisco.

Dr. E. R. Charvoz has moved from the second floor to the sixth floor, where he will occupy suite reception room with Dr. O. H. Brown.

Dr. E. C. Bakes has moved from the fourth floor to the fifth floor.

Dr. T. E. McCall has moved from the second floor to the sixth floor, where he will occupy suits with his brother, Dr. R. A. McCall, the dentist.

Dr. J. L. Borah, the dentist, has moved from the second to the fifth floor, and will have in association with him, Dr. Pafford.

Dr. I. L. Garrison, formerly in the Heard Building, has moved into the quarters vacated by Drs. Martin & Schwartz, on the second floor.

The rooms vacated by Dr. Wilkinson, on the second floor, will be occupied by Dr. Logan Dameron (dentist) and Dr. Grant Monical, who comes from the Ellis Building.

Dr. George Goodrich has moved from the Heard Building into an attractive suite of rooms on the fifth floor.

Dr. Orville H. Brown has moved from his North Central Ave. office into the Goodrich Building, occupying reception room jointly with Dr. Charvoz, on the fifth floor.

Dr. Edgar H. Brown, orthopedist, will occupy offices on the sixth floor.

There are one or two very attractive suites still unoccupied in this building, and the landlord (Mr. Roy Goodrich) is holding some of them in reserve pending decision by one or two groups who are considering them. When these are filled, as they doubtless will be, more than half of the physicians of the city will be tenants of this building.

A NEW MERCURIAL

What has been done for arsenic by the skill and patience of Ehrlich and his co-workers—that is to say, the presentation of it in a form that combines spirocheticidal activity with comparative safety of administration—has been done, it seems, for mercury also. This has long been the aim of chemical research—to find a mercurial compound that would kill the spirochete of syphilis without injuring the patient; in other words, a mercurial compound that could be administered in spirocheticidal doses.

Dr. Gruhzit, of the Parke-Davis laboratories, reports the demonstration of this property in Mercurosal administered intravenously to animals inoculated with syphilis. Two, or at the most three, doses eliminated the spirochetes completely from the syphilitic lesions. The doses corresponded to a dose of 0.2 gram for a man weighing 150 lbs., and it is believed that ten or twelve intravenous injections of a dose of this size should change a positive Wasserman to a negative in the primary stage of syphilis. Nevertheless, arsenic also (in the form of arsphenamin) or bismuth (as the salicylate) is advised, and a continuation of the treatment at intervals for two or three years.

Literature on Mercurosal is offered to physicians by Parke, Davis & Co., the manufacturers.

POLLEN ASTHMA

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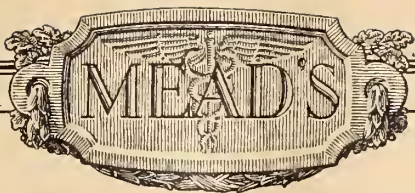


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Arizona Association Will Meet in Bisbee, April 16, 17 and 18
New Mexico Association Will Meet In Clovis May 19, 20 and 21



SOUTHWESTERN MEDICINE

VOLUME IX

MARCH, 1925

No. 3

OFFICIAL ORGAN
OF THE
NEW MEXICO MEDICAL SOCIETY
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
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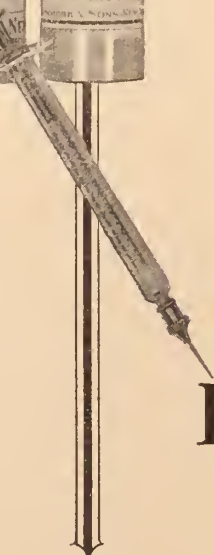
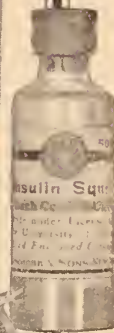
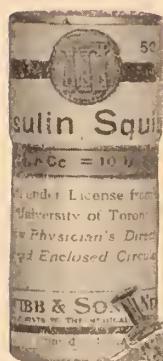
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REPORT OF THE SECTIONAL CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS THAT MET IN EL PASO, TEXAS, FEBRUARY 6 TO 7, 1925

ORVILLE EGBERT, M. D.

EL PASO, TEXAS.

El Paso is to be the host of a series of medical conventions during 1925. The first of these, the Sectional Clinical Congress of the American College of Surgeons, met February 6-7, 1925. The Section comprises New Mexico, Old Mexico and Texas. The College is centering its efforts on hospital standardization. This was convincingly brought to both the profession and the public, in the El Paso meeting.

The program for the first afternoon was a "Hospital Conference." The conference was presided over by Dr. John T. Moore, of Houston, Texas.

Dr. Allan Craig, of Chicago, Ill., Director of State and Provincial Activities for the College, spoke on "The Hospital Standardization Movement—Past and Present."

"Hospital Efficiency from Standpoint of the Internist" was presented by Thomas E. Scott, Major Medical Corps, U. S. Army, Chief of Medical Service, William Beaumont General Hospital.

Rev. C. B. Moulinier, S. J., of Milwaukee, Wis., President Catholic Hospital Association, took as his subject, "The Patient, the Doctor, and the Hospital."

The American Protestant Hospital Association was represented by Dr. Robert Jolly, Superintendent of the Baptist Hospital, Houston, Texas, who spoke on "Some Things That Hospital Standardization Has Accomplished."

These speakers showed that hospital standardization brings better equipped hos-

pitals from the kitchen to the laboratory; that properly prepared and complete case records are of the greatest value to the patient, the institution, the surgical, the medical, and the nursing services. Hospital standardization was first centered and built around surgery, but now it is realized that properly systematized and recorded medical service with efficient personnel, is just as important. County medical societies should have the moral courage to renounce their inefficient members to the end that any member of a county medical society could, without question, practice in any standardized hospital.

The outstanding impression one got from the completed program was that the hospital exists and is perfected for the patient and not for any group or individual associated with it; therefore equipment, service and management are all raised to the highest possible point of efficiency, and all co-ordinated, thereby offering the patient the best in hospital service.

Without doubt the outstanding feature of the Clinical Congress was the community health meeting. Every medical convention has at least one session to which the public is invited, always excellent programs are offered, but the attendance is notoriously poor. The College is to be congratulated for its system of publicity seems to command the public's attention. The attendance at this session was excellent. The following is the program as presented that night:

COMMUNITY HEALTH MEETING

Friday Evening, February 6th. 8:00 P. M.
Auditorium, Scottish Rite Cathedral
F. N. Carrier, M. D., Santa Rita, Presiding

Piano—Mrs. J. M. Richmond.

Invocation—Rev. Frank H. Fox.

Addresses—

1. Efficient Hospitals.
Malcolm T. MacEachern, M. D. C. M.,
Chicago Associate Director American
College of Surgeons, Director Hos-
pital Activities, President American
Hospital Association 1924.
2. How You Can Help Your Hospital.
Robert Jolly, Superintendent Baptist
Hospital, Houston, Texas.
3. Neuralgia and Its Treatment.
A. W. Adson, M. D., Neurological
Surgeon, Mayo Clinic, Rochester.
4. Safety First in Using Your Eyes.
Edward Jackson, M. D., Denver, Ed-
itor American Journal of Ophthal-
mology and Ophthalmic Year Book.
5. Healing the Sick.
Rev. C. B. Moulinier, S. J., Milwau-
kee, President Catholic Hospital As-
sociation.
6. Health Problems with Especial Refer-
ence to Tuberculosis.
Allan D. Craig, M. D. D. C. M., Chi-
cago, Associate Director American
College of Surgeons, Director of State
and Provincial Activities.
7. How the Fires of the Body Are Fed.
Moving Picture Film.

The scientific program was presented
on the afternoon of February 7, at which
Dr. A. W. Adson, Neurological Surgeon,
from the Mayo Clinic, spoke on "The Diag-
nosis and Treatment of Trifacial Neural-
gia."

"Surgical Principles Illustrated in Catar-
act Operations" was Dr. Edward Jackson's
(Denver) subject.

Clinics were held both days at Masonic
Hospital, Providence Hospital and Hotel
Dieu. The following is the clinical program
for the two days:

MEDICAL AND SURGICAL CLINICS

Friday Morning:

Masonic Hospital, at Five Points:

8:00 o'clock: Thoracoplasty, Lung Abscess.
Dr. Felix P. Miller

Hotel Dieu, Arizona and Stanton Streets:

8:30 o'clock: (1) Ligature Subclavian Ar-
tery for Traumatic Aneurism.

(2) Two cases Uterine Fibroids.

Dr. Andres Villareal.

9:00 o'clock: Cataract Extraction.

Dr. H. H. Stark.

9:30 o'clock: Open Reduction Old Back-
ward Dislocation Elbow Joint.

Drs. W. L. Brown and C. P. Brown.

10:00 o'clock: Demonstration Autopsy
Specimens, Heart Diseases.

Dr. W. W. Waite.

Saturday Morning:

Hotel Dieu, Arizona and Stanton Streets:

8:30 o'clock: Thoracoplasty, Pulmonary
Tuberculosis;

Discussion, Indications and Contraindi-
cations, Dr. Orville Egbert.

Operation, Dr. Felix P. Miller.

8:30 o'clock: (1) Gallbladder, Possibly
Stones:

Discussion of diagnosis, Dr. F. D. Gar-
rett.

Operation, Drs. W. L. Brown and C. P.
Brown.

(2) Acute Osteomyelitis Femur, (child
three weeks old).

(3) Hemorrhoidectomy, Local anes-
thesia, Dr. W. L. Brown and Dr. C. P.
Brown.

10:00 o'clock: Demonstration Surgical
Pathology with Specimens, Dr. W. W.
Waite.

The excellently planned program and
general success of the Congress was large-
ly due to the efforts of the local commit-
tee, composed of Drs. H. H. Stark, James
Vance, W. L. Brown, R. L. Ramey, L. G.
Witherspoon and Hugh Crouse, with Dr.
Felix P. Miller, as Chairman. Special men-
tion should be made of the untiring efforts
and careful details worked out by the
Chairman.

SIDE LIGHTS ON CLINICAL CONGRESS

Dr. H. O. Sappington, State Health Of-
ficer, newly appointed by Governor Miriam
Ferguson, attended the clinical conference.

Dr. W. B. Russ, of San Antonio, former
president of the Texas State Medical As-
sociation, was present and took part in the
round-table discussion at the hospital ses-
sions.

If a doctor cannot pass a difficult ex-
amination, he ought not be allowed to prac-
tice in the joint city and county hospital.
This was the vote of the American College
of Surgeons when Dr. Hugh Crouse asked
them what they thought of the protest
some local physicians are making against
being forced to take these examinations to
qualify.

Father C. B. Moulinier, president of the
Catholic Hospital Association, stated: "I
advise you to go to court, if necessary, and

bar incompetent doctors from your hospital. The courts will sustain you. The patient's welfare is the guiding and only excuse for a hospital."

A plan to change the state grouping of the American College of Surgeons so that West Texas will meet with Arizona, New Mexico and Northern Old Mexico, was placed in the hands of the State Committees of the states involved. The plan would take Arizona from the California Section and place it in the above mentioned group, while Texas would be divided, the eastern half of the State being placed in the Oklahoma group.

El Paso has been considering abandoning the old county hospital and building a new County-City Hospital. When the committee from the College of Surgeons visited the county hospital, they advised that the present hospital not be abandoned, that it be modernized by a few additions like elevator service, increase the laboratory facilities, and by so doing have a very excellent hospital at small cost. It was pointed out that the location was ideal and the building excellently constructed and that to abandon it would be a foolish extravagance.

The Rotary Club was host to the visiting surgeons on the first day of the meeting. Short talks were given by Dr. M. T. MacEachern (Chicago), Dr. Allan Craig (Chicago), Dr. Edward Jackson (Denver), and Dr. A. W. Adson (Rochester, Minn.).

"It was a very good meeting all the way through," said Dr. F. N. Carrier, of Santa Rita, N. M., "and it was handled very nicely; in fact it was a credit to El Paso and especially to the big crowd that turned out

for the Community Health meeting at Scottish Rite Cathedral Friday night. When the College is sending out men all over the country, holding meetings and improving conditions in the hospitals, it is gratifying to know that the people appreciate it."

Dr. M. T. MacEachern said: "Any doctor who speaks at the public health meeting at Scottish Rite Cathedral tonight and uses terms a layman cannot understand, will never talk on an American College of Surgeons' program again."

The following is a partial list of the registrants for the Clinical Conference: Dr. P. G. Comiskey, Albuquerque, N. M.; Dr. W. F. Glazier, Carlsbad, N. M.; Dr. Frank C. Beall, Fort Worth; Dr. Albert O. Singleton, Galveston; Dr. A. F. Lumpkin, Amarillo; Dr. H. O. Sappington, State Health Officer, Austin; Dr. H. A. Ingalls, Roswell, N. M.; Dr. F. N. Carrier, Santa Rita, N. M.; Dr. John J. McLoone, Phoenix, Ariz.; Dr. Robert Jolly, Houston; Dr. A. W. Adson, Rochester, Minn.; Dr. John S. Foster, Houston; Dr. W. R. Thompson, Fort Worth; Dr. F. P. Miller, El Paso; Dr. Edward Jackson, Denver; Dr. M. T. MacEachern, Chicago; Dr. M. P. McElhannon, Belton, Texas; Dr. J. H. Gambrell, El Paso; Dr. W. C. Field, Las Cruces, N. M.; Dr. L. L. Miner, Silver City, N. M.; Dr. W. B. Russ, San Antonio; Dr. Alden Coffey, Fort Worth; Dr. J. A. Moore, Marshall, Texas; Dr. Everett Jones, Wichita Falls, Texas; Dr. J. W. Bourland, Dallas; Dr. W. L. Brown, El Paso; Dr. H. Stark, El Paso; Mrs. J. C. Buntin, Augusta, Kan.; Rev. C. B. Moulinier, S. J. Milwaukee; Right Rev. A. J. Schuler, S. J., El Paso; Ida E. Bishop, El Paso; A. Louise Dietrich, R. N., El Paso.

SYMPOSIUM ON INDUSTRIAL SURGERY

JOHN E. BACON, M. D., F. A. C. S.,

Chief Surgeon, Miami-Inspiration Hospital
MIAMI, ARIZONA

Read in the Symposium on Industrial Surgery, at the Tenth Annual Session of the Medical & Surgical Association of the Southwest, held at Phoenix, Ariz., Nov. 6 to 8, 1924.

For some years past it has become increasingly apparent that industrial surgery is rapidly approaching the status of a specialty of medicine. The accumulating experience of great organizations like the United States Steel Corporation which have developed highly efficient hospital departments indicate that it is the best of good business to provide for the maintenance of the health of worker by supervision of working conditions, prevention of epidemic and occupational disease, prevention of accidental injury, as well as first aid; trans-

portation and expert care of the injured in the emergency and during convalescence, to insure his restoration to productive work in the shortest space of time.

Anything that is found to be good business in industry receives increasingly minute attention by men trained to analyze causes, effects and costs, and this attention is now being translated into good industrial hospitals, with much better trained personnel. In this way there is being created a demand for men trained in industrial surgery which should, and I believe will, en-

courage medical schools to provide courses, clinics and internships for those who may be attracted to this field for a life work.

What specialty of medicine offers more from a humanitarian viewpoint? Is not the most valuable unit of society, the worker in productive industry, entitled to the best hospital and professional care there is when he gives his body as a sacrifice to speed, in mass production? Could there be more satisfaction to any specialist than that which comes to the industrial surgeon who knows that his training has enabled him to send a fellow man back to useful work who might have been a hopeless cripple, a charge on society?

From the economic viewpoint what specialty of medicine can show a more important field? The industrial surgeon deals almost exclusively with those engaged in productive labor, contributors to the national wealth, and this is the most important of all human groups. There are annually in the United States 3,000,000 accidents which cost the huge sum of \$1,010,500,000.00 per year. From figures compiled by the Association of Industrial Surgeons it appears that under the best of existing organizations this cost can be reduced from ten to fifteen percent, which would mean a saving of over a hundred million dollars a year in that branch alone; but add to that what can be saved by prevention of epidemic and occupational disease, by reclaiming to useful work many who used to be hopeless cripples, through physio, mechano, and occupational therapy and we have a figure that is well worth consideration.

The cost of lost time accidents and the cost of preventable disease, enter directly into the cost of production of steel, machinery, textiles, copper, cotton and every other manufactured thing that we export to sell in competition with the rest of the world and the lower the cost of these goods the better trade shall we have, and the more prosperity will be ours.

The world is now entering upon a period of fierce competition for markets wherein our workers in all lines of industry will be made to compete with low cost labor whose living conditions are far below ours, such as the Chilean peon who gets two dollars gold a day or the native African in the Belgian Congo who gets sixty cents a day, against five to six dollars a day for the American miner. The daily wage of the German, French, English, Belgian and Austrian craftsmen will average about one-half that paid to our mechanics, textile workers and

other wheat belts of the world—Russian, Roumanian, Brazilian and Argentinian—who labor with the help of large families from dawn till dark, have about put our own wheat farmers out of business, even with all our virgin fertility and labor-saving machinery. During this period every waste in industry that can possibly be eliminated must be cut off in order to keep our goods abroad at a price where they can be sold, so the possible saving of one to two hundred million dollars places a direct responsibility upon industrial surgery which its exponents should be proud to assume. I do not know of any other specialty in medicine which can measure in economic saving its value to society.

Having thus announced an opinion that the industrial surgeon of experience is to all intents and purposes a specialist, it becomes necessary to point out wherein his work differs from that of the general surgeon or any general practitioner who does some surgery, for the idea seems latent in many professional minds as well as in the minds of the laity, that a doctor is a doctor and it makes no special difference which one you employ so long as he is a good one. To my mind nothing could be further from the truth. A degree in medicine certifies that its possessor has completed certain courses of study based on fundamental sciences and that is all. What a given graduate ultimately becomes depends entirely on his experience as the years go by. A man may, by association, circumstance, or deliberate intent, be so placed that much surgery comes his way but the kinds of work he may get may differ widely. One may become expert in the abdomen by mere repetition plus earnest study and post-graduate work; another may become expert in the pelvis and organs of women from similar influences; another may find the pathological conditions of the skull and brain his chosen or accidental field; another may find that cancer comes most frequently under his care and become expert in that field; but none of these will see in a life time as many fractures of all bones in the body as an industrial surgeon in charge of thousands of men working for a large corporation will see in three years. If I may illustrate by name without offense I would mention John J. Moorhead, of New York, in industrial work since his internship, a specialist beyond question; Kellogg Speed, Chief Surgeon of the Illinois Steel Company and of several railroads of Chicago, an industrial surgeon whose wonderful experience in fractures makes his written word authority; R. A. Corwin, of Pueblo, Chief

Surgeon for the Colorado Fuel and Iron Company, who some years ago had treated over thirty thousand fractures, and there are many hundreds more following along the path by which they have climbed, accumulating experience, learning from the experience of others, who will all be specialists worthy of the name.

In so limited a field as that in which we have labored for the past fourteen years caring for an average of four thousand men and their families, we have records of almost five thousand fractures covering practically every bone in the body, and looking backward along the course that we have taken we realize that there is a most amazing improvement in everything we do, due to constant repetition of the same procedures under the same conditions. The work is surer, faster, and the probable result more accurately estimated than was possible to us a dozen years ago.

Another factor operating in the evolution of the industrial surgeon is that every case he handles has three very important aspects instead of the usual one between doctor and patient. Besides his relation to his patient, he is responsible to his employer who expects him to produce good results, and he is responsible also to the state as represented by its laws or Industrial Commission. Every single case may be subject to review by a commission or by a trial court. His end results and his pictorial record in radiographs may be submitted to a jury of laymen, and the surgeon may be called upon to justify his work before critics whose judgment of results and of radiographs might be open to question at least; and, worst of all, he will often be faced in court by members of his own profession ready and apparently willing to put the worst construction on what they hear and see. If every general surgeon were open to such checks and such review by laymen and his colleagues on his appendectomies for chronic disease, his gallbladder and pelvic work, his kidney surgery, and his cancers, his gastro-enterostomies, and be compelled to justify his diagnosis and his end results in a court of law instead of having only to satisfy the patient and his family, our progress toward better pre-operative diagnosis, toward complete case records, and toward frank, honest analysis of end results would be far more rapid, and evolution of general surgery toward actual specialism would be accelerated.

The great difference between the work of the industrial surgeon and that of the general surgeon, as applied to the emer-

gency, is that he deals with a traumatized organism and with traumatized tissues, and the question of shock, general or local, is never absent. Judgment can only be acquired by experience; it cannot be learned from the best of books, and it is by experience with hundreds of cases that the industrial surgeon becomes qualified to exercise a sound and special judgment in the first treatment of the injured that frequently determines life or death, the saving or loss of a part. I would leave with you the firm conviction that the first treatment or dressing of an injured man frequently determines the prognosis of the case, no matter what may be done later on, and it is then that the decision of what to do, when to do it, how much to do and what not to do marks the specialist. No general surgeon, it matters not how learned, how perfect his technic, how wonderful his skill in dealing with inflammations, cancer, ulcer, tumors and pathological conditions can have that judgment unless he has had that experience too, when he also becomes an industrial surgeon as well.

After judgment the next difference that has impressed itself on me at least, is the matter of technic in the use of well-known appliances. The Thomas splint is about fifty years old but the art of using it is quite young, and unless the Thomas splint is used correctly it has no advantage over the old fashioned Bucks extension, in fact it is not as efficient, yet it is one of the most frequently misused tools that I am aware of, and I do not hesitate to say that it requires a good deal of experience and practice to apply it properly and a good deal of time to attend to the details of keeping it operating as it should.

Skeletal traction has come to stay in industrial work and correctly applied the ice tongs or calipers are efficient, comfortable and coming to be indispensable. Improperly applied they are dangerous, painful and inefficient. To know just where to engage the points from the femur or the malleoli, to prevent any traction on the skin, and to keep the little wounds aseptic requires a good deal of practice. To apply the traction in the exact line of the fractured bone and keep it there, meanwhile allowing freedom for nursing activities, requires ingenuity sometimes amounting almost to engineering. No surgeon will correctly do these things at his first attempt; they are among the things only to be learned by observation, experience and practice, the path that leads to specialism. Early massage, and stimulation of muscles by electrotherapy, with early active motion of the joints

has come to be recognized as a wonderful time saver as well as a function saver, but must be done with due regard for the safety of the reduction; and so on through the entire list of the things that are done every day in industrial hospitals but are not so commonly seen in general hospitals. Expert deftness in a multitude of minor procedures contributes to a result wholly major in its usefulness.

Time forbids a discussion of other things in which the industrial surgeon must and does excel, such as a thorough knowledge of orthopedic principles in the use of splints and casts and in posture during the acute stage, without which too many of his cases will go to the orthopedic surgeon later for corrective surgery for conditions that could have been prevented. He must also make full use of physiotherapy, electrotherapy and occupational therapy, to shorten the period of disability, each one of

which subjects could well furnish material for a paper by itself. A certain amount of psychotherapy is also essential to insure a cooperating contented patient.

For any well qualified young man willing to work, and willing to serve a five year period as assistant to a successful industrial surgeon, I do not know of any department or specialty in medicine that promises better or surer rewards than this one. Employers of large numbers of men are coming to regard this work as indispensable rather than as a necessary nuisance, as they did twenty years ago, and ability in this field is coming to be recognized and sought after, and for such young men there is an absolutely infallible rule for brilliant success which will never fail,—the words of one of our old time humorist-philosophers, Josh Billings, "Success don't consist in never making mistakes but never making the same one twice."

INJURIES TO THE HEAD

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Read in the Symposium on Industrial Surgery, at the Tenth Annual Session of the Medical & Surgical Association of the Southwest, held at Phoenix, Ariz., Nov. 6 to 8, 1924.

Injuries of the head are always of importance and however trivial they may appear to be, they are never to be lightly treated.

Although a blow on the head may not be followed at the time by any symptoms of brain disturbance and the only apparent result may be a simple cutaneous bruise, the bone and brain, as well as the integument may have suffered and grave results may ensue.

When, however, as a primary effect of injury, evidence exists of brain disturbance, the importance of the case is increased, for brain bruising, compression and laceration may follow the simplest accident.

There comes to our hospital and dispensary an average annual number of 1950 casualties, that is, both major and minor, of which 7% are head injuries and of these 3% are definitely major from the time they are first seen.

However, many of the minor head injuries require very close observation and study, taking into consideration their immediate status and weighing carefully the possibilities of what may develop in the near or distant future.

The questions to decide in every case of head injury are the following, at least:

1. What is the nature of the injury?
2. What treatment should be instituted?

Probably for convenience of description the different major injuries may be classed as follows:

1. Concussion of the brain.
2. Fracture of the bony vault.
3. Fracture of the base.
4. Laceration of brain tissue and membranes.
5. Intracranial hemorrhage.

CONCUSSION OF THE BRAIN

I have noted the past few years that several writers on skull and brain injuries are rather inclined to make light of the term and to speak of it as that greatly abused term "concussion." It seems to me that there is a group of symptoms better described and covered by the term "concussion" than any other descriptive word, characterized by signs and symptoms that are temporary, and are those exhibited in the following case:

Miner, age 30, hit on head by falling rock, admitted to hospital per ambulance, easily roused to consciousness, heavy breathing, pupils equal, pulse 60, no paralysis, rested well that night; next day conscious, pulse 54.

Next day pulse 48 to 62, apparently normal mentally; blood pressure, systolic 130, diastolic 65; spinal puncture shows fluid normal as to pressure and contents. X-ray negative. On the fifth day pulse was 60-64 and patient was discharged.

It was learned from late observation that a normal pulse for this man was around 76. Diagnosis: Mild cerebral concussion.

FRACTURE OF THE VAULT

Generally caused by direct blows on the part, or falls upon more or less sharp bodies.

These are lesions which can be demonstrated by inspection, palpation and x-ray. Some of these cases will present a picture of concussion, shock and possibly a localization of brain injury and of course they may be simple or compound. Remembering that the important feature of these cases is the character and extent of the brain injury and that the fracture of the skull is generally of small importance.

CONTUSION AND LACERATION OF BRAIN AND MEMBRANES

Here is a condition of bruising or crushing and tearing of the brain and its coverings by the violence of the impact.

These conditions may be accompanied by fracture which may be simple or compound and the lacerations may be slight or severe, with small punctate hemorrhages to severe and fatal hemorrhage.

Case 2: Miner, age 45, fell 25 feet out of a traveling bucket striking vertex on a two inch square peg which was in a drill hole; admitted to hospital per ambulance, unconscious stertorous breathing, vomiting, restless, pulse 50, respiration 12, deep and heavy, pupils normal and equal; contusion and laceration of scalp in mild vertex region; no paralysis.

First night, very restless, pulse 46-50, can be roused to semi-consciousness. Because of continued slow pulse and deep, heavy, stertorous, slow breathing spinal puncture was done showing a fluid under heavy pressure with large amount of blood; 30 cc. removed. Blood pressure, systolic 154, diastolic 80.

One ounce magnesium sulphate in four ounces of water given every three hours per rectum.

Second day, pulse 46-48, deep heavy breathing at times simulating a Cheyne-Stokes; x-ray shows linear fracture of right parietal bone. Spinal puncture 25 cc. bloody fluid, less pressure and less blood than on the previous day.

Third day,—patient can be roused to drink, pulse 50 to 56, respirations less deep and stertorous; blood pressure, systolic 142, diastolic 80. At this time patient presents an alternating convergent strabismus and large extra-ocular hemorrhages.

Fourth day, blood pressure, systolic 138, diastolic 78, pulse 54-60.

After two weeks pulse was 78, blood pressure 135-75, strabismus cleared up. No focal symptoms, normal mentality.

Diagnosis: Contusion and laceration with simple fracture of vault.

FRACTURE AT THE BASE

Is frequently associated with fracture of the vault and is invariably a severe injury. Generally caused by fall from a height, striking upon the vertex. When the plunge of the body is suddenly arrested by the vertex coming in contact with the ground, rock, cement walk, or highway, and the entire superincumbent weight

with the momentum acquired by the fall or attained by the propulsion of the automobile, is concentrated around the condyles of the occipital bone, the central compartment or middle fossa of the base of the skull is broken across. May be simple or compound.

HEMORRHAGE

Intra-cranial hemorrhage is the most common cause of serious symptoms following injury of the head; fatal if unrecognized and unrelieved, and this again may be accompanied with fracture, either simple or compound. These hemorrhages may be extradural or intracerebral.

ANATOMY

The cerebrospinal fluid is secreted by the choroid plexuses. It gains exit to the subarachnoid space through the three small openings in the roof of the fourth ventricle. After entering the subarachnoid space it passes both downward over the spinal cord and upward through a large oval opening in the tentorium cerebelli, to spread over the cerebrum. Here it is absorbed into the blood stream for the most part, through the arachnoid villi.

With a continued hemorrhage from the middle meningeal artery, or with the edema and swelling which follows contusion or laceration of the brain, we have a blockage of the subarachnoid spaces over the cerebrum.

As the pressure above the tentorium increases, absorption of the cerebrospinal fluid is lessened. The fluid continues to be secreted, a part of which is poured out into the subtentorial spaces and spinal canal, while a considerable part is dammed back in the ventricles of the brain. The result is a marked increase in the cerebrospinal pressure the effect of which is a direct pressure on the medulla and cerebellum and, at the same time, pressure becomes greater on the cortex. On account of this pressure on the vital centers in the medulla, we get the symptoms of slow pulse, high blood pressure, vomiting and stertorous breathing.

PROGNOSIS

The prognosis in head injuries depends in a great measure upon the damage done to the vital centers about the base of the brain and is in no way proportionate to the extent of the cranial injury.

TREATMENT

Bear in mind that cranial trauma is an acute condition, and that treatment should be directed toward tiding the brain over the period of edema and swelling which follows the bruising from the injury, and that surgical procedures are rarely insti-

tuted in the first forty-eight hours after injury. During the past few years there has been considerable change in the methods of treating head injuries. It was the general opinion up to rather recently that most of these cases should be sent immediately to the operating room and a subtemporal decompression done. On account of the high mortality which resulted from such treatment, the pendulum is swinging to the opposite side and fewer operations for head injuries are being done.

The treatment of all of these cases has for its object the conservation of the brain, rather than any special treatment of the bone lesion itself. Patients entering the hospital with head injuries, particularly if they savor of the major type should be kept quiet as possible. All wounds should be cleansed and dressed. When shock has passed, the temperature has become normal and the blood pressure has come up, x-ray plates should be taken and the wounds given proper surgical attention.

This, as a rule, is an opportune time to make a spinal puncture for the purpose of determining cerebrospinal pressure and the character of the spinal fluid. If the fluid is very bloody and under considerable pressure, with a slow pulse rate, cerebral contusion and laceration is to be suspected and the picture is grave. If the fluid is only very slightly blood tinged or clear and under a medium pressure the prognosis is more favorable.

When this has been done, we are in a better position to determine a line of treatment.

With the two conditions just presented and in the absence of any focal symptoms, treatment by spinal puncture and dehydration by the administration of hypertonic solutions of magnesium sulphate, by mouth, rectum or intravenously is indicated. Give a minimum of liquids unless a condition of shock exists.

I am favorably impressed with the administration of large doses of sodium bro-

mid during the first few days, believing that it lessens restlessness and irritability enabling the surgeon to better study the case; also it minimizes the risk of having or developing the convulsion habit.

SURGICAL TREATMENT

The surgical treatment of injuries to the head is a rather limited but very important field; namely, that of exploring the compound fracture, elevating depressions, arresting hemorrhage, removing of blood clots and foreign bodies, the operation of decompression and ventricular tap.

It is quite unnecessary before this body to go into the mechanical and technical details of any of these procedures. However, let me say that the operation of election for decompression when used by the industrial surgeon is the temporal muscle splitting operation of Cushing, in preference to the large temporal osteoplastic flap operation, unless, of course, neurologic signs are present showing with fair exactness an area of brain involved.

CONCLUSIONS

Expectant and conservative methods with keen close observation should be practiced, such as pulse, respiration, temperature and blood pressure readings every fifteen minutes.

Every compound fracture should be explored unless the patient is shocked.

All cases of hemorrhage should be operated immediately.

Lowering head of bed or table will lessen risk of brain stem being choked in foramen during spinal puncture.

All cases of definite focal symptoms should be operated at once; they generally represent hemorrhage.

These cases of brain injury do not tolerate a general anesthetic at all well; consequently local anesthesia is to be preferred.

High pressure of the spinal fluid is of greater value than high blood pressure as an indication for operation.

FRACTURES OF THE LONG BONES

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The subject of fractures and their treatment is such an extensive one that it will not be possible, in the short time allotted, to enter into any detailed discussion of

the various methods which may be employed. It will be our purpose to mention briefly the generally accepted principles and methods used in the conservative treatment

of fractures of the long bones, and then outline the course we have found most satisfactory in our treatment of these fractures at the United Verde Hospital in Jerome.

For the purpose of this discussion we shall confine ourselves to the long bones of the extremities with particular emphasis on the femur, tibia and humerus. The general principles involved apply to all; namely, to overcome the retraction of fascia and muscles which tends to produce deformity, by the use of traction and countertraction, pressure and counterpressure; to bring the fragments into alignment and apposition; and, finally, to maintain this by suitable methods and immobilization until union takes place. The outstanding feature in the conservative treatment of fractures of the femur is the use of some form of continuous extension applied to the lower fragment indirectly by means of adhesive plaster or glue, or direct traction by steel pins or calipers. Extension may be temporary, to assist in reduction followed by a plaster cast, for which purpose the Hawley fracture table may be used. When continuous traction is used immobilization is accomplished by some form of splint such as the Thomas or Hodgen in which the leg is suspended in the desired position by means of weights from a suitable frame. In fractures of the humerus continuous extension is often necessary and coaptation splints may be used to assist in maintaining alignment. The Thomas and Jones arm splints are examples of apparatus which may be used to obtain extension and counterextension. Fractures of the tibia are more easily reduced by direct manipulation and, as a rule, are most satisfactorily immobilized by a plaster cast extending above the knee and including the foot, although occasionally continuous traction may be necessary, particularly if the fibula is also broken.

Conservative closed methods of treatment, if conscientiously and carefully carried out, may often give very good functional results. We are all satisfied with good functional results so far as the patient is concerned. The industrial surgeon, however, is often forced by the circumstances under which he works to take a different attitude from that of the general surgeon. The latter may justly feel that he has accomplished all that is essential when function is restored. The industrial surgeon, however, is coming more and more to the point where he cannot be satisfied with this, but must, if possible, also secure anatomical restoration. This situation has been brought about by our industrial com-

pensation laws, unscrupulously taken advantage of by shyster lawyers ready to seize upon even a slight deviation from the anatomical as the basis of a damage suit. Realizing that this existing condition could only be obviated by securing better anatomical as well as functional results, we have adopted the course of operating all fractures of the long bones where reasonable efforts to obtain accurate anatomical alignment and apposition of the fragments by closed methods have failed, or when there is any doubt that this can be accurately maintained. We have found in our work that by following this plan we not only secure a good anatomical result in nearly every case, but the number of good functional results is correspondingly increased. Statistics quoted by one authority tend to show that good function may be expected in over 90% of cases in which there is a good anatomical result. Sir Robert Jones has shown that this may be expected in less than 30% of cases where the anatomical result is bad.

Our procedure in the treatment of closed fractures of the long bones is as follows:

First, a careful study is made of x-rays taken in several planes. The patient is then treated according to one of the conservative methods. Failing to secure accurate reduction, open operation is decided upon and the fracture is temporarily immobilized for a period of not less than ten days and often longer. This allows time for reestablishment of the damaged circulation and partial recovery of devitalized tissues at the site of the fracture, and is an important point in prevention of post-operative complications. The patient's general condition from the standpoint of surgical risk must also be taken into consideration.

Careful preparation of the part is done in the usual manner and an ample incision is made, care being taken to place it, if possible, where least damage has occurred to soft tissues. Inasmuch as it has been our experience that even the best x-rays of fractures taken from different planes seldom give an absolutely accurate picture of conditions as found on direct examination, delays are avoided by being prepared for any procedure found to be indicated. We, therefore, have in readiness kangaroo tendon sutures, steel plates, steel bands, beef-bone plates and screws, and are also prepared to do an autogenous graft if necessary.

When the fracture has been freely exposed accurate apposition and alignment is

secured and maintained by the method which seems best suited to the type of fracture being dealt with. Healing is greatly facilitated if all clots, hematmata, and badly damaged tissues be removed as far as possible. Control of all bleeding before closure is also important. We take care of all oozing blood and serum by the use of rubber tissue drains placed at the site of fracture and in the overlying soft tissues, removing these when drainage is at a minimum, which is approximately after 48 hours. The periosteum and soft tissues are approximated with chromic gut and the skin closed with interrupted silkworm sutures. A plaster cast is applied immediately, immobilizing the joints above and below the fracture. Dressings are done daily until the wound is completely healed, using careful aseptic technic.

Compound fractures with large wounds and extensive laceration of the soft tissues are operated early if the patient's general condition permits. We wish to emphasize that in these cases the fragments are simply brought into anatomical apposition and fixed if possible with beef-bone screws with as little disturbance of the soft parts as possible, except as necessary to control hemorrhage. The wound is thoroughly cleansed and debrided and is allowed to remain open. The cast is so applied that Carrel-Dakin treatment may be instituted at once or at the first indication of infection.

Compound fractures with small external wounds are dressed daily and treated as a closed fracture, or if operation be decided upon, it is delayed until such time as the wound has healed or it is certain that no infection is present. In our compound fractures with infection we carry out the Carrel-Dakin treatment in detail. So far we have been fortunate in not having had a single case of infection of operative wounds in closed fractures.

Casts are cut as soon as sufficient union has taken place to permit it and the patient referred to the physiotherapy department for light massage, passive and active motion, helio- and hydrotherapy.

Steel plates and bands are all removed after good union is obtained, except in such cases where the patient refuses.

The results we have obtained thus far in a fairly large series of cases have been very gratifying, not only from the standpoint of the patient but from the medico-legal standpoint as well. Advantages to the patient are increased assurance of good functional results, freedom from pain and discomfort almost from the first, greater freedom of movement, and usually a materially shortened convalescence. In considering the advantage to us from the medico-legal standpoint we find that during the past five years there has been only one suit brought against us in a fracture case and in this the jury returned a verdict for the defendant. However, in this case a reasonable settlement had been offered the man and, although the jury found out and out for our company, the plaintiff was taken back to Jerome, returned to work, and the original offer paid him. This treatment characterizes the attitude of every corporation in this state toward its employees in rendering the best treatment we know how as well as arriving at a just settlement for the suffering and damages sustained.

We realize that in following the plan of operating the majority of fractures of the long bones we are not abiding by the teaching of the best authorities and will doubtless be considered radical by many of you. We invite your criticism, but feel that so long as we get results we shall continue to follow this course.

THE INDUSTRIAL MALINGERER

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*Read by title in the Symposium on Industrial Surgery at the Tenth Annual Session
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I am bringing this subject to your attention not because the malingeringer is a newcomer in industry but because the number of this class of so called workers is rapidly increasing and becoming a serious menace to one of our major industries.

The old time miner was usually an honest man. When he was injured it was very apparent and when he recovered from his

injuries he was ready for work again. We still have many of this class of employees in the copper industry and in other walks of life, but their number has gradually diminished and their places have been taken by men with a lesser sense of honor. In this class is included an ever increasing number of malingeringers. The malingeringer as a class naturally lends itself to several sub-

divisions. In short all malingerers are not alike but vary according to their honesty and ambition.

First: We have the industrial crook who secures a position with the full intention of receiving an injury and capitalizing it. This injury will always be over the site of a former injury or defect which may have escaped the observation of the physician who examined for employment. If no injury or defect is present, an injury of a not too serious nature can be received which will keep the wolf from the door for a considerable period of time.

Second: The employee may not seek employment for the express purpose of collecting damages, but his mind is already made up that if he receives an injury he will make the most of it financially and so when he has made a good recovery he will continue on crutches or otherwise camouflage his real condition until he has obtained the greatest possible amount in settlement from his employer.

Third: There is always the petty malingerer who is tired and wants a vacation on half pay. This man usually gets a sprained back or groin or some other obscure injury usually good for a few weeks lay off.

The sum total of these various classes is quite large,—an ever increasing menace to industry in general.

I have no intention of going into the symptoms and treatment of this class of cases. My object in writing this paper is to call the attention of the general practitioner to a class of practice which he has doubtless met in small numbers but which many have failed to recognize, simply from lack of experience.

During an epidemic of typhoid fever the physician can readily diagnose even the atypical cases which would baffle him as isolated cases. The physician who is constantly confronted by malingerers of the above classes is like the physician during a typhoid epidemic; he has his eyes constantly open for this class of patients and can often spot a malingerer before he has heard his history. Often have I seen my assistants pick out the malingerer on his first visit to the doctor's office and in 75 to 90 per cent of cases they have been correct in their diagnoses.

But, you ask, what interest is this discussion to the industrial physician and surgeon, since these cases are so numerous and rather easily recognized and what possible interest can it be to the man in general practice?

My chief answer to this inquiry is that every physician, on account of his educa-

tion and interest in his town and state, loves fair play. A malingerer is one who is not interested in fair play. In fact, this is the last thing he wishes to see applied to his case.

The industrial physician is supposed to be a neutral go between for the corporations and their employees. Some smile in a knowing way when they hear this stated, especially by an industrial physician, but, except in rare instances, this is true if the representatives of the corporations and employees are to be believed. The honest employees, and there are many of them, are as anxious as their employer to trap and exterminate the malingerer.

The greatest stumbling block in the way of a wholesale eradication of this pest is the physician who is often secured to bolster up the lame claims of a tricky patient and his attorney. I do not believe that in most cases this is a deliberate attempt on the part of the physician to misrepresent the true condition of his patient, but rather a lack of experience with this class of people. In general practice the physician can place considerable reliance on the history of his patient. With a malingerer the history is valueless. In general practice the patient responds naturally to physical examination and usually cooperates with the physician to secure a correct diagnosis. With a malingerer the response, as far as possible, is according to a prearranged plan and the patient attempts to mislead the physician in his diagnosis.

The malingerer with a real injury, for example a tarsal or metatarsal fracture, will often refuse to allow any motion of his foot and will put no weight on the foot long after such exercise should be started thus bringing about stiffness and atrophy of disuse which a malingerer is often willing to accept with the additional money these unfortunate conditions demand. The malingerer demands a perfect result in all fractures, both from an x-ray and functional standpoint, while the ordinary patient is usually satisfied with a good functional result taking into consideration the severity of the injury and difficulty of getting any satisfactory result.

These are a few of the problems to be faced by all physicians, both industrial and otherwise, and their solution should be earnestly sought by us all. As an industrial physician who has had more than twenty years experience in this class of work, I have a few suggestions to make which may arouse us all to a better understanding of each other and of this class of patients.

I believe that all industrial physicians should be absolutely sure of their ground before a diagnosis of malingering is made. This, of necessity, presumes a careful study of the history as elicited from patient and as many witnesses as possible and a very exhaustive physical examination by at least two and preferably three of the medical staff if that number is available. Repeated examinations should be made at short intervals and repeated x-ray pictures taken.

Several times I have seen a serious mistake averted by the second or third x-ray showing a fracture and a slight separation of fragments when the former pictures showed the faintest evidence or no evidence of fracture.

The physician in ordinary practice should remember, first, that when an injured patient, who is an employee of a large industry running a medical department, comes to him, that this patient has probably been submitted to the exhaustive history, investigation and examination as above advised and that a superficial or moderately thorough examination on his part, with possibly one x-ray picture and no history except that of the patient, is absolutely insufficient. By accepting this condition and making a report as a result of such superficial investigation he is liable to do himself, his patient and the employer a grave injustice. The physician in general practice should never proceed on such an examination until he has the history from

every standpoint and all evidence for or against previous injury. He should remember that he is working in a field in which he is not an expert and is reviewing the work of men who are never without this class of patients and who presumably are more likely to make a correct diagnosis if there is anything in the old saying that practice makes perfect. He should remember that subjective symptoms are not objective ones and should never make an adverse report on subjective symptoms alone.

Finally, the general practitioner should remember that these cases are a real menace to the community in which he lives. The malingerer obtains money under false pretenses; he is a drone living on his fellow men.

A follow up of a few cases whose compensation has been adjusted on the report of neutral non-industrial physicians has proven beyond a doubt that the malingerer almost without fail has obtained compensation when not entitled to it or obtained more than he would have received had a true evaluation of his physical condition been made.

The errors have usually been made along two lines. First, the history of the patient has been swallowed as gospel truth with no attempt to secure all testimony concerning the reported injury, and secondly, the examining physician has failed to distinguish between subjective and objective symptoms.

THE OPERATIVE TREATMENT OF FRACTURES

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Read in the Symposium on Industrial Surgery, at the Tenth Annual Session of the Medical & Surgical Association of the Southwest, held at Phoenix, Ariz., Nov. 6 to 8, 1924.

At present there seems to be a very definite wave of reaction against the operative treatment of fractures. This will probably swing too far toward conservatism exactly as the popular wave in favor of operation went to extremes. The present dictum is union. It has been frequently stated lately that anatomical re-position was not important.

In consequence of the above trend many fractures, especially about joints and in weight-bearing bones, are being passed along, bringing, as time goes on, a series of joint and muscle strains extending even into the spine. Therefore the present wave of conservatism will ultimately do as much harm as the former trend of radicalism did.

Of course if a surgeon who undertakes the operative treatment of fractures is not

going to the trouble to develop his technic and that of his team sufficiently well to do simple fractures without infection, then he had best err on the side of conservatism. The technic should be developed until it should be rarely necessary to touch a fracture with anything but instruments and sponges. And, above all, remember that the most dangerous source of infection is the skin, and that it should be completely closed off from the wound, and never touched with the hands.

INDICATIONS FOR OPERATIVE INTERFERENCE

Simple Fractures:—There is one indication which applies to all forms of fractures and that is where, with every reasonable effort, a fairly good anatomical reduction cannot be attained and maintained. This

indication is subject to wide variations, one of the most important of these being the question of growing or a grown bone.

In the young, where the bones are still developing, the weight-bearing line of crystalization, provided the fracture is not too near or in a joint, will finally straighten bones in a remarkable way, and in direct ratio to the number of years a bone has yet to grow. The weight-bearing line running through the concave side of the angle will cause new bone to be deposited on that side and absorbed from the convex side, even to the full thickness of the original bone. This, however, occurs only to a very limited extent in bones that have already reached maturity. Much liberty may also be taken with non-weight-bearing bones, provided the healing of the fracture will not interfere with the function of a joint.

It indeed seems strange how the old bugaboo about operating on fractures will cause surgeons to give patients two or three anesthetics over a series of days, leaving them in some sort of bungling harness with nothing but discomfort and suffering to look forward to for from four to eight weeks, and finally an unsatisfactory result. The patients accept this punishment because they believe the surgeon has made every effort that was possible when he is really neglecting the only effort that was possible to restore the limb to an approximately normal condition.

Compound Fractures:—Primary operations are much more often indicated in compound fractures than in simple; this, because of the fact that the skin is already broken and the fracture potentially infected. I think there is nothing more pernicious in the teaching relative to compound fractures than that operations should not be undertaken unless clinically manifested infection develops. Here again good judgment must enter into consideration. If the compounding force is from within, the skin opening only a puncture, the surroundings good, and reduction can be attained and maintained with splints, then careful disinfection of the wound with iodine may be all that is necessary at the primary dressing. In fact experience shows that the great majority of these fractures will heal kindly without infection. On the other hand, where the compounding force is from without the soft tissues are nearly always traumatized, the wound is likely to be larger, and the bone fragmented and difficult to reduce and maintain in reduction.

In addition to this class of cases being more certainly infected, the traumatized

tissue is a source of danger, and the long period of handling for dressings is painful. In such cases nothing is to be lost but everything to be gained by increasing the size of the opening, if necessary, making a special effort at removal of devitalized tissue, fixing the fragments so that they will be at perfect rest and instituting a prophylactic disinfection. For the latter we much prefer Dakin solution properly applied so that it reaches under pressure every crevice of the wound. It is much easier in these cases to maintain anatomical position by securing union from the start than it is to correct vicious position and non-union by a later operation.

Of course this internal fixation should be of the simplest character possible to maintain the position for five or six weeks. On rare occasions kangaroo tendon or wire will suffice. If neither of these will do, then use the Parham band, if possible, and, as a last resort, use a Lane plate. No metal is buried with any hope that it will heal in. It is used as a temporary fixation to be removed as soon as sufficient fibrous tissue is formed to maintain the approximation. I appreciate that it is very unpopular in the average group of surgeons to talk about internal fixation of compound fractures. I think this fear complex has been brought about by trying to heal these foreign bodies in, when as a matter of fact they become an actual menace in a fracture which will retain itself in position, if they are left beyond the period of healing. The relief from pain from firm internal fixation of the fragments alone outweighs all the danger, if the above rules are adhered to.

UNUNITED FRACTURES AND VICIOUS UNION

Just exactly when a fracture should be considered ununited, provided it is in anatomical position to units, is a moot question. If it is a weight-bearing bone and there is fairly good end to end approximation, and it can be supported so that the patient can walk on it, it may unite after even six or eight months.

It must always be remembered that the primary effort of a bone at reproduction is greatest immediately following the original trauma. After this effort is once spent, it may be difficult to ever again get it to put forth sufficient effort to bring about union. This is one of the strongest arguments in favor of maintaining fragments in position, especially in compound fractures. After bone grafting came into vogue fractures were treated with more indifference, compound fractures particularly, because of the thought that the position could be correct-

ed later and a graft inserted. Certain failures were encountered because of the fact that the bone never again made the effort at union that a fresh fracture makes.

There has been much confusion relative to the indications for the use of bone plates, bands, and bone grafts in fracture work. Bone grafts practically are never to be used in fresh fractures. Bone plates and bands are rarely to be used in old or ununited fractures. The bone graft supplies the osteogenesis necessary in ununited fractures, that has to a certain extent been lost after the primary effort at union. This function is not necessary in fresh fractures as it is inherent in the parent bone. Occasionally in ununited, or in cases of vicious union, where there is much over-lapping, it is sufficient to saw off the ends of the fragments, traumatize them thoroughly with a chisel and use a plate. But in the great majority of cases the bone graft is to be preferred, and occasionally the combination of the two where there is a great tendency to displacement. Bone grafts are not primarily intended for fixation, and will not stand the strain where there is constant effort at displacement. We are now very partial to the sliding graft where it can be used instead of the intramedullary.

CONCLUSIONS

1. If one has proper hospital facilities, well trained assistants, and will take the trouble to master the technic for operation on fractures, these operations should be shorn of the ancient bugaboo of superstition about infection.

2. Operative procedure should be given careful consideration in simple fractures where reasonable effort at reduction and maintenance has failed, and especially if they are in or near a joint in a weight-bearing bone.

3. In serious compound fractures where there is great trauma to the bone and soft tissues temporary internal fixation may be the deciding factor as between a useful limb or a useless or amputated limb.

4. In ununited fractures, or fractures united in a vicious position the bone graft, preferably the sliding graft, is nearly always indicated, with occasionally an additional plate or band if there remains great effort at displacement. The bone graft practically should never be used in fresh fractures and other forms of fixation, and rarely in ununited fractures.

DISCUSSION OF THE SYMPOSIUM ON INDUSTRIAL SURGERY

DR. C. A. THOMAS, Tucson, Ariz., (Opening): Dr. Bacon's paper I did not get to hear. The papers on fractures,—while I do some industrial surgery,—are almost entirely out of my scene. The cases that

I have,—the amputations have usually been done before they get to me, as I do railroad work. However, I believe I would like to mention one point, that in compound fractures I feel that the operations ought to be done immediately, that is after the necessary internal fixations have been made. The point made in the paper by Dr. Brown on ununited fractures is well taken. A bone is not an ununited fracture in the first three months; I have seen many fractures operated after three months and called ununited fractures. As a matter of fact they will often heal and unite and make good recoveries six, eight and ten months after the original fracture. I would also like to speak a favorable word for the band; I think it has a lot of favorable features over the screws.

I very much enjoyed the excellent paper of Dr. Holt on injuries to the head. I was much impressed with the statement made when I was a student, that no head injury should be considered trivial; I was further impressed a number of years later by the statement made by Dr. Murphy which was something to the effect that he would rather be killed outright than to have a head injury which rendered him unconscious. Dr. Holt did not mention the matter of scalp wounds and their treatment, and I feel that they should be mentioned also as being important, as often scalp lacerations will run into injury to the brain or the deeper structures, and they should be carefully cared for and sutured.

In the treatment of head injuries and fractures, my experience might be my own and peculiar to me, but I have found that decompressions are a failure so far as the outcome is concerned. I have wondered if it was my own fault, but I came to this conclusion,—that if a head injury or a fracture needs decompression, he probably didn't need it either,—because they do not get results. I am very fond of the spinal puncture with the head lowered, as a relief, in preference to operative procedure.

DR. R. D. KENNEDY, Globe, Ariz.: The treatment of fractures, as we all know, requires a knowledge, not only of anatomy, but of physics and mechanics, and doctors probably vary more in their knowledge of mechanics than in anatomy, and the percentage of open operations for the treatment of fractures is probably as good an indicator as any doctor may have as to his knowledge of mechanics. If he is a good mechanic he won't have to have so many operations.

One appliance I have not heard mentioned is the skeleton traction in the treatment of fractures of the lower end of the tibia and fibula. If we understood the Thomas splint better, also, we would have fewer open operations. The Thomas splint used in the treatment of fractures requires a great deal of care; you can't put one on and reduce a fracture and then leave it alone because it will not stay in place. You have to watch this splint all the time and see it at least once a day, and have the nurse watch the rest of the time. In some cases you can not reduce it by the ordinary splint, and the skeleton traction is necessary to hold them in position. There are not many of these that you can not reduce in any other way than by traction or open operation.

As to whether you are working for a good functional result or a good anatomical result, depends largely on whether you are working for a corporation which is apt to be sued for large sums if there is a little anatomical defect. In your average private case if you get a good functional result, the patient as a rule is well satisfied.

One point brought up by Dr. Holt's paper, about which I would like to sound a word of caution. In cases of some of these head injuries with a spinal puncture, be careful you don't let out the fluid too
(Continued on page 107)



Fig. 1. Compound fracture tibia and fibula four weeks after fixation with Lane's plate. Plate has just been removed. Fibula was not exposed at operation.

(Upper Left)

Fig. 2. Same as Fig. 1, two years and five months later.

(Upper Right)



Fig. 3. Compound comminuted fracture tibia and fibula—car-wheel accident—with much trauma soft tissues. Foot dangling. Held in position with plates on fibula. Dakinized.

(Lower Left)



Fig. 4. Photograph of leg (Fig. 3), showing plate exposed in necrotic wound.
(Upper Left)

Fig. 5. Three months and fourteen days following operation. All wounds healed, firm union in both bones, leg perfectly straight, good motion, ankle joint. Was able to resume work at end of five months.
(Upper Right)



Fig. 6. Compound comminuted fracture both bones above the ankle. Dangling foot.
(Lower Left)



Fig. 7. Fragments of tibia brought together and banded.



Fig. 8. Same as Fig. 7 six years following the accident. Normal function of bone and joint.



Fig. 9. Old vicious union in tibia. Much eburnation and changed relation of bones with ankle joint.

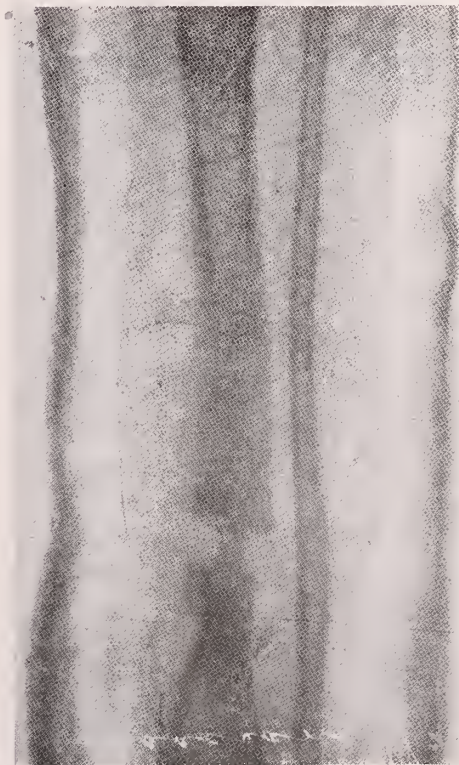


Fig. 10. Position corrected and intramedullary graft.



Fig. 11. Two months and twenty-five days following intramedullary bone transplant in Fig. 10, showing that the constant effort at displacement is gradually squeezing the graft in two and causing absorption. This graft should have been reinforced by Lane's plate to cause mechanical fixation.

(Upper Left)

Fig. 12. Transplantation of eleven inches of the fibula of the opposite leg into a gap in the tibia seven inches long, due to gun-shot injury. Transverse dark lines near the ends of the graft are the ivory fixation pegs through the bone and graft. The light areas throughout the graft are drill holes for the purpose of admitting nourishment.

(Upper Right)

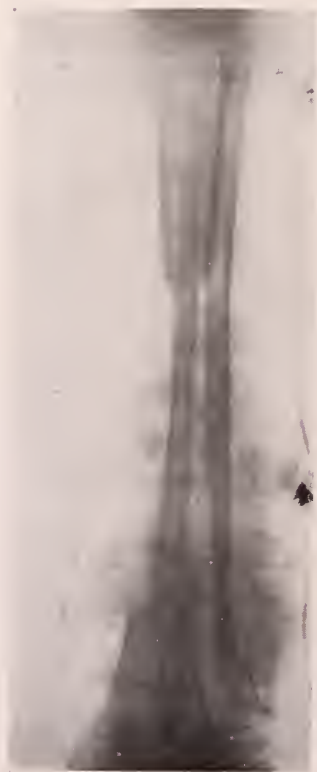


Fig. 13. October 6, 1924, same as Fig. 12, eleven months later. Showing fracture of the graft an inch below the upper end of the tibia, with a large callus formation, proving that grafts will reproduce bone. This fracture is four months old.

(Lower Left)

DISCUSSION OF THE SYMPOSIUM ON
INDUSTRIAL SURGERY

(Continued from page 102)

fast, because you must bear in mind that this fluid can not get down through there as fast as it can come out of the needle; if you lower the pressure in the spinal cord quicker than in the cranium, you are liable to have the patient pass out on you very quickly.

DR. E. PAYNE PALMER, Phoenix, Ariz.: In the course of my short twenty-six years in Phoenix I have seen a great change in the practice of surgery, especially in industrial surgery, as mentioned by Dr. Bacon. He and Dr. Holt were comparatively young men then; they weren't as bald or as gray as they are now. My experience over these years has shown that the industrial surgeon has improved even much more than Dr. Bacon has led you to believe.

I see a great many of these cases in consultation or in advisory capacity; not so much any more from poor results obtained, but in the matter of compensation. My experience leads me to believe that the industrial surgeon has made more progress in the last 25 years than any other surgeon, whether special or general.

In the case of head injuries, the one particular point which most of us do not give enough stress to is rest. Every concussion,—whether it be slight or great, results in an injury to the brain; even a slight one gives us a brain injury, even though the concussion is not sufficient to produce unconsciousness, we must put that patient to bed and give him rest. Dr. Murphy believed the average concussion case should receive six to eight weeks rest in bed; that is much more than is usually given. Dr. Holt spoke of a case sent home in a few days. Dr. Holt knew better than that; I hope he won't do that any more; that is a mistake.

I believe we also make a mistake in not doing more exploratory work in the brain. We get a brain injury, or a head injury and we can not determine by physical examination without exploration whether or not there is a hemorrhage sufficient to produce a permanent injury; you do see the after effects, and then see that it is too late, and it is my belief that a few more explorations, the same as we do abdominal explorations, will result more favorably for the patient, and fewer patients going to the insane asylums.

DR. W. O. SWEET, Phoenix, Ariz.: The paper that Dr. Holt presented with regard to head injuries, if you will read it three or four times you will begin to see that it is very technical. I have done and am doing a great deal of study with regard to this proposition of head injuries. I have had some of these cases requiring study and observation, and as Dr. Holt has said, the pendulum is swinging back from operations to more rational and conservative treatment. Conservative surgery is that which produces the best results. However, I do not believe in going into these heads and exploring them, without very definite evidence that such should be done. If a man has an x-ray and knows the clinical facts of his head injuries, it will not be necessary to go into the head in very many cases to clear up what may be necessary for a fairly accurate diagnosis.

The situation of the industrial surgeon is such that it brings to him more cases than come to an individual engaged in general practice, outside of an industrial center. Nevertheless insurance companies will tell you that over 80% of injuries are first treated by the general practitioner,—the fam-

ily doctor. The greatest improvement that can be brought about, therefore, is more widely disseminated knowledge from teaching like Bacon and Holt working in industrial centers.

I think that a more rational industrial law ought to be enacted,—a compensation law that is just to both the corporation and the employee. The compensation law should be improved and made of benefit to the workman and employer as well; the workman himself is the greatest sufferer under our present law. If it were not for the policy of our corporations to take care of their compensation cases voluntarily, they would not secure the justice they do. What they receive at present, in most instances, is volunteered on the part of the employer, is volunteered on the part of most employers.

DR. S. A. SCHUSTER, El Paso, Texas: Any investigation of brain injury or head injury is not complete without a careful examination by an ophthalmologist. Very often we detect signs of brain involvement by examination of the optic nerve. When we consider that the optic nerve is really a part of the brain, one can very readily see that such an examination is necessary. I feel that often,—although not necessarily always, of course,—that you will find early signs in the eye-grounds or in the optic nerve, and that thorough examination should be made of that phase, before deciding to operate in cases of head injuries.

DR. CHARLES S. VIVIAN, Phoenix, Ariz.: I want to say one thing,—that the reason Dr. Carlson in his work, when he puts on plates, always takes them off afterwards unless the patient refuses,—is because the x-ray plate may get into court. That x-ray plate can not get into court unless some doctor interprets it. When Dr. Sweet amends the law of the state to make it fair, he wants to think about the doctor that helps the shyster lawyer, as well as about the law.

DR. H. T. BAILEY, Phoenix, Ariz.: Dr. Schuster in speaking of eye manifestations in head injuries reminds me of a patient I saw in New York who had a head injury where there was paralysis of the external rectus. This was lectured on by the professor, and he showed us that a paralysis of the external rectus of the eye following a head injury usually meant injury of the apex of the petrous portion of the temporal bone, and so much stress was put on this that ear men considered it just ground for a mastoid operation to clear it up.

DR. H. H. STARK, El Paso, Texas: I was very much surprised at the number of head injuries,—the percent of them. I did not know there were so many.

I would like to ask if it is customary to take a Wasserman on all these cases. My reasons for asking is that where a head injury occurs and there is present a lues, probably your secondary involvement of the nerves is greater than if you start your treatment immediately.

The points brought out by Dr. Schuster and Dr. Bailey that it is possible to do your localization through your eye or ear test are all right, and I think all of you can use an ophthalmoscope and tell when you have a pressure, it is not hard to do it with a dilated pupil.

DR. ORVILLE H. BROWN, Phoenix, Ariz.: It has not been said, but I presume it is taken for granted that a thorough neurological examination should be made repeatedly in all these cases of head injuries.

DR. JOHN E. BACON, Miami, Ariz.: Concerning the claims I put forward for the industrial sur-

geon, I do not think you could have a more wonderful confirmation of these claims than the papers you have just listened to. These papers are, to my mind, the product of specialists, and their experience such as tends to make them specialists.⁵

Just a few words on the points of difference arising on Dr. Brown's treatment of fractures, the doctor stating that he does not consider a fracture in itself an indication for an operation. If it can not be treated by the usual methods, it must be so treated; there are cases where fractures can not be reduced except by open operations.

I am sorry I have to take a little exception to Dr. Hedberg's stand on operating every fracture of the long bones. Dr. Vivian hit the nail on the head; it is a fact that some other fellow may take an x-ray of that later. I would rather be sued for a slight defect in anatomy than for a scar. Ninety per cent will come out with good functional results. If a man has a scar and sees a prospect of three or four thousand dollars as a result of it, no matter what the functional results is, he has a lawyer and knows that he has a jury to work on and certain members of our own profession to support him, and the scar will be blamed almost every time.

I think Dr. Holt is to be congratulated on his article.

Just one word about the point Dr. Kennedy brought out. It is true that care and study spent on these cases from a mechanical standpoint is most valuable. If a person knows the Thomas splint and can use it, you won't operate on many cases of fracture of the femur, but it does take that unremitting care and constant checking up by the x-ray. The skeleton traction is useful also if it is properly supported by bands to correct alignment and other deviations, and watched every day. In our hospital we go in every day and check up, with a tape measure, regardless of the x-ray plates.

DR. W. L. BROWN. El Paso, Texas: I feel, as one of the visiting doctors here,—I would consider it amiss, in fact, if I didn't mention the clinics we have seen here. I have enjoyed them very much, and I know we all have. I have seen just as good clinical work done here as I have seen anywhere in the country and I want to take this opportunity of saying that I appreciate it, as one of the visitors.

I think Dr. Holt's idea of checking on the intracranial pressure is the outstanding feature of head injuries now. We are also pretty well convinced that the spinal pressure measured by spinal manometer will give us an indication of the pressure before we get it in the eye grounds, and if we will use the spinal manometer so we can check our spinal pressure, we can get a much better advantage, because a great many die of edema of the brain and intracranial pressure.

Another point, we have not drained the fractures we have operated on; we never instituted drainage in any of these cases. In cases where we apply internal fixation, we put them in now with the understanding with the patient that this internal fixation will be removed in four to six weeks, or before they leave the hospital; that this can be removed with local anesthetic; in that way we have not had any trouble with patients refusing to have it removed. We do not remove them in the fore-arm, but in the weight-bearing bones it is better to have them removed, as it might be that months or perhaps years later an irritation might be set up; we would rather remove it ourselves before there is any possibility of it causing any harm.

DR. C. HEDBURG, Jerome, Ariz.: I would have preferred Dr. Carlson to be here and defend his views upon his work.

I think we will all agree with what Dr. Kennedy has said about our having a good understanding of mechanics, and that if we all had such an understanding probably a good many operations for fractures would be eliminated.

I think Dr. Carlson would say, however, that there is more difficulty in going into court with a case where the x-ray shows anatomical deviation than the scar which the patient may complain of.

DR. W. A. HOLT, Globe, Ariz.: I wish to thank the gentlemen for their remarks about the paper I have read here on head injuries. I do not recall having heard a paper read on head injuries since I have been in the southwest, and I don't know why they have ignored this particular field. I go to most of the meeting,—not all of them, of course.

Dr. Thomas mentioned what Dr. Murphy had said,—that he would rather be killed outright than to have received a head injury severe enough to have caused unconsciousness, and then come to. While all of us, of course, have a most profound respect for Dr. Murphy in all matters surgical, it seems to me that the last decade has rather altered conditions to which this particular remark applied. We see a great many cases of head injuries that have been brought into the hospital unconscious, or semi-conscious, and who rapidly recovered. However, I will not admit that Dr. Murphy would have carried this view into the future.

Dr. Kennedy's remarks on the spinal fluid are quite correct. The spinal fluid should be removed very slowly, with the head lowered.

Now regarding explorations. Explorations on the head, except for tumors, or unless you have focal symptoms, or neurological signs,—I do not believe the man of to-day, particularly in the industrial field, is privileged to do much of it; I do not believe they would accept the chance at all. This industrial field makes us very cautious, and I believe the particular field to be very cautious in is this matter of injuries to the head, because it has shown of late years that much more good has been obtained by conservative, rather than the operative and exploratory methods.

Dr. Stark expresses his surprise at the percentage of head injuries. Out of an annual number coming into our hospital of 1950 casualties both major and minor, 7% are head injuries, and of these 3% were definitely major; that would bring it up to 4 or 4½% of cases were major head injuries, considering concussion as a major injury.

In regard to Wassermans, it is the custom in all traumatic cases, and in all industrial cases, to run a Wasserman on them.

You know, I thought there would be one class of our men not interested in head injuries, but I was agreeably surprised to hear that the neurologists took a part in this discussion.

The use of the manometer to measure the spinal fluid is not difficult, and can be done with pronounced accuracy; it gives you an excellent way to measure it. If you should have a reading of, say 20 mm. withdraw the instrument and let it go back to normal; if you should have a reading of 25 or 30 mm. you should not allow it to go back to normal but to about 15 or 16, and quit at that point; then, after six, or eight or ten hours, repeat.

A MENTAL HYGIENE PROGRAM FOR THE UNIVERSITY AND THE COLLEGE

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During the last few years the subject of mental hygiene has received constantly increasing attention. The movement towards adding to the already established department of general hygiene in the higher schools a division concerned with the promotion of mental hygiene is taking definite form. A few considerations in regard to the character of this department which have occurred to the writer in discussing the subject with educators are here presented.

The words "Mental Hygiene" have been put to various ignoble uses by quacks and pseudo-psychologists and have, as yet, no very definite connotation. It is important that the student's first acquaintance with the subject shall be constructive. Mental hygiene should mean to him a definite contribution to the value of life. It should be presented in a broad way, and included in this presentation might be such topics as, the various well-known methods of increasing efficiency; the recognized technic to be employed in the formation of habits; the laws of fatigue, and the limits of fatigue to be established; the tremendous value of play, and the difference between complete and partial play, as well as the distinction between recreation and dissipation; and the established rules by which memory may be improved. These are but a few of many subjects which might be mentioned.

The laws of suggestion should be explained and given their practical applications, and the simpler and more widely accepted truths in regard to the much exploited "subconscious" made clear. These fields border on the problems of the emotional life, and here we find much that the adolescent should be taught. Such fundamental principles as the great importance of finding a proper outlet for emotions and the harmfulness of emotions which cannot be translated into conduct should be emphasized. The destruction wrought by anger, envy and hate should be made clear, and contrasted with the value of affection, sympathy, appreciation, gratitude, and the altruistic emotions generally as constructive forces.

The cultivation of charm and the development of the best personality possible for each individual is almost entirely a matter of psychology, beauty specialists to the contrary notwithstanding;—and this subject

should not be omitted. In this connection helpful suggestions in regard to overcoming self consciousness could be made, and the real art of making friends touched upon as something which it is actually possible to acquire.

The special emotional problems of adolescence should be treated sympathetically, yet without the undue emphasis that is sometimes placed upon them. In the field of sex hygiene—so notably being dragged in the dust in these days—no one can feel that the course to be pursued is a simple matter. It would seem more than probable that the details of sex hygiene would take care of themselves if the youth of either sex gained a clear view of sex as the mystery and miracle it is in its proper biological relations; of the fact that the capacity for a beautiful and ennobling sex attachment is the most precious of possessions, easily lost and never fully regained; and that the further from these points of view the path strays the more there is subtracted from life, the less of dignity and value there is in the emotions of sex,—until at the other end of the gamut we find joyless vice and the various degradations and degeneracies which would for all normal people lose their allurements if frankly understood.

In the field of pathological psychology, the real import of undue introspection, of extreme selfishness—which Conan Doyle calls "a true insanity"—of sentimental sympathy, of interest in the occult, of cravings for "world brotherhood" or other communistic conceptions, might be mentioned as subjects for helpful discussion. Here would belong, also, the special methods of establishing contact with such psychopathic personalities as must be dealt with individually. In some cases the personality defect would require the finding of some special occupation, or need a carefully conditioned life. A by-product of the department, under a properly qualified director, would be the discovery of the occasional case of serious mental disorder in the incipient stage when the maximum amount of help could be given.

The variously exploited fables of psychology should be discussed so that the immature youth would not be carried away by current misinformation. For example, familiarity with the truth that mental en-

dowment is practically a fixed quantity, and that a contented attitude towards life is dependent, among other things, upon accepting one's self in an objective way just as we accept other unalterable things such as the weather, would avert many tragedies. An understanding of this truth would prevent the sad results of believing the self-styled psychologist who tells of the vast "reservoir of greatness and power" which each of us possesses—if the way to siphon out its contents can but be found!

The choice of a vocation is an ever-present problem to the student. A properly conducted department of mental hygiene would both directly and indirectly guide many young people towards a happy solution of this problem. In considering this subject, mental ability is only one of several factors that must be taken into account. Courage, cheerfulness, ability to endure fatigue, adaptability,—all that makes up what the word personality connotes—determines success or failure as much as—perhaps much more than—mere intellectual endowment. Here the student may find help of obvious value.

From a somatic standpoint, mental hygiene could well include explanation of the part chemistry plays in the emotional functioning of the human machine. The disastrous effects of fear, including worry, reticence, and the "inferiority complex," have close chemical correlations, which must be considered in any intelligent discussion of the problems so frequently presented in this field. The chemistry of fatigue is of interest and its consideration of practical value. The part played by the ductless glands has the greatest relevance and importance. In this connection it is forcibly suggested that neither the physician untrained in psychology nor the psychologist who has not studied medicine could adequately fill the position of director of a mental hygiene department, in which must be synthesized the medical, neurological, psychiatric, psychological, biological, and social points of view.

Care should be taken to prevent the student from regarding mental hygiene as

a pathological investigation, nor should he think of it as a problem in research. A questionnaire in this field might better follow than precede the period of introducing mental hygiene as a distinctly helpful contribution to the unfolding of the mind of the student and to the development of his personality. The student should, a priori, be impressed with the fact that in the department of mental hygiene will be found that which concerns his happiness and efficiency, and which will assist him to achieve that smoothness of adaptation to daily life that is the very fine art of living. A questionnaire, moreover, should be skillfully worded so that it does not carry distressing suggestions nor list ailments, both physical and mental, of which the student has probably never heard, and the mention of which acts as a suggestion. "Have you found it easy to form friendships?" Similar considerations will readily present themselves.

Dr. Stewart Paton, in an article on the subject of this paper which appeared in the *Scientific Monthly* for December, 1924, calls attention to the fact that one of the chief functions of mental hygiene is to point out the obvious. Many things which are so familiar to the academic psychologist as to have lost all keenness of interest are new and important to the person inexperienced in life; for instance, many a quarrel would be averted and many a friendship remain unbroken if people generally knew that the natural tendency to be sure that we are right is based on ignorance of the fundamental facts in regard to the accuracy of memory and the fallibility of human testimony so familiar to the psychologist. It is these familiar facts, rather than those in the more alluring field of research, which are useful in preparing the student to live successfully in the everyday world to which he will return from the protected environment of the school.

The mental hygiene movement is part of the recognition being given in recent years to the biological significance of education. Under wise guidance, and in the hands of the right leaders, much may be expected of this department. The finding of these right leaders, who will be able to guide the movement wisely and avoid the mistakes which could so easily defeat its object and discredit the entire program, is of the first importance.

THE CAUSE OF DEATH IN BURNS

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(Discussion before the Staff of St. Joseph's Hospital, based on autopsy of case of severe burns dying within twenty-four hours).

A burn is defined as "a high grade of acute inflammation following the direct or indirect application of dry or moist heat to the cutaneous or mucous surfaces of the body."

The character and extent of the local changes will depend upon certain factors, most important of which are the delicacy of the tissues involved, the length of time of exposure, and the height of temperature to which the part is exposed. The more delicate tissues are injured by relatively slight elevation of temperature, while more protected parts, such as the palm of the hand and sole of the foot, may withstand high temperatures without destructive effect.

Burns are usually classified according to the severity of the local effect: — **First degree**; hyperemia without vesication but usually with some desquamation; **second degree**; destruction of the superficial layers of the skin with bleb formation, liquefaction necrosis and some exfoliation, but without destruction of the entire skin; **third degree**; involvement of the entire skin and the deeper tissues the muscles and sometimes the bones. (Some authors classify as **fourth degree** burns involving tissues deeper than skin and subcutaneous layers.) In third degree cases there is immediate destruction of tissue with more or less charring.

Local Effects: The pain is usually very severe, especially in extensive first and second degree burns, due to the irritating effect on great numbers of cutaneous nerve filaments; it is less in third degree burns. The inflammatory changes in second degree burns are associated with vesicle formation and edema of surrounding areas. If deeper structures are involved there is greater amount of tissue destruction and greater loss of function of the part. The later effects are necrosis and the local effects of infection, should this occur, and still later, scarring and resultant contractions.

Constitutional Effects: When over one-third of the body surface is seriously involved in a burn, a fatal result may be expected. When death occurs immediately, or within twenty-four hours, this outcome should be considered as due to shock. The systemic effects of a first degree burn are relatively slight unless large areas are affected. In second degree burns the shock may be transient and the patient rapidly recover, or it may be so severe that death quickly occurs. In third degree burns the immediate shock may be so severe that a comatose state intervenes and death occurs before pain becomes a factor. When death does not occur early, evidences of intoxication develop, hemorrhages into the alimentary canal, hematuria, hemoglobinuria and other symptoms indicating that we are dealing with a toxemia.

Necropsy following death from shock shows intense and extensive hyperemia of the gastro-intestinal tract, very marked hyperemia of the kidneys and, to a less degree, of the liver. If the patient survives for a few days, ulceration of the duodenum may be found, though MacCallum says this is a rare occurrence. Evidences of severe gastroenteritis and intestinal hemorrhage may be

present. Many theories have been offered as to the essential cause of death in superficial burns. Among these may be mentioned (1) suppression of cutaneous function; (2) altered function of the nervous system, especially involving reflex phenomena; (3) formation of toxic substances in the blood; (4) destruction of blood elements; (5) absorption of poisons from the burned area.

In 1868, Wertheim advanced the theory that death was due to a toxin thrown into the circulation. Later, toxic substances were demonstrated in both the blood and urine of burned patients, and these were regarded as ptomaines. The lesions found are so similar to those produced by bacterial toxins (e. g., diphtheria) that death from toxemia was reasonably assumed. From 1904 to 1914 Peiffer conducted research work on the cause of death from burns and came to the conclusion that a poison was produced at the site of the burn, the exact chemical nature of which he was unable to show, but considered it a nucleo-protein, somewhat resembling snake venom.

Robertson and Boyd of Toronto, in 1923, published results of experimental work on this subject. After preparation by removal of the hair, animals were anesthetized and burns produced by application of hot metal plates. Typical symptoms followed. There was primary shock lasting six to eight hours. Between ten and twenty-four hours there was a period of apparent improvement and freedom from severe symptoms. In twenty-four to thirty-six hours, toxic symptoms appeared; temperature rose three to five degrees F.; food was refused; there was muscle twitching or convulsions, diarrhea, occasional bloody stools, hemoglobinuria, NPN increased 40 to 50 percent. Of eight fatal cases, two died in the first eight hours of primary shock, five died in thirty-six hours to five days of toxic shock and one died in three weeks of secondary infection. In one group, the skin was dissected up and the subcutaneous tissue burned and the skin flap then sutured back in place, the effects being identical with burns of the skin. In another group the burned skin was transplanted to healthy animals and skin from healthy animals sutured in where burned skin was removed. If the burned skin was removed within eight hours after the burn, no toxic effects developed, but if not removed until later toxic symptoms occurred. Animals receiving the burned skin transplants developed toxic symptoms within an hour of the operation. Necropsy showed general hyperemia of abdominal organs in all cases dying within a week. Other findings were petechial hemorrhages in the bowel mucosa, especially the lower ileum, acute parenchymatous degeneration in the abdominal viscera, congestion of lungs; heart was normal except after a week when fatty degeneration develops. It was shown that the content of blisters raised by burn was not toxic. Blood serum alone of a burned animal was not toxic, but whole citrated blood from a burned animal, if injected into healthy guinea pigs, caused toxic symptoms and death in five cases, the autopsy findings in these being identical with those dying from burns in the period of toxic shock. The toxic substance chemically consists of primary and secondary proteoses.

Attempt to induce antibody formation by injection into healthy animals resulted in failure.

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ARIZONA STATE MEETING PROGRAM

The full details of the program for the Arizona State Medical Association meeting at Bisbee, April 16th, 17th and 18th, cannot be published in this issue. Special arrangements are being made to carry the completed program in the April issue and to mail that issue by April 5th, so that all the doctors in the state will have complete details of the program at least a week in advance of the meeting. Watch for that, and in the meantime, read the following and get enthusiastic!

There will be an excellent symposium on Tuberculosis and Chest Diseases, lasting about half a day; the following papers are assured in this group:—

Drs. C. E. Yount and John D. Brooks, of Prescott—"Further Observations on Surgery in the Tuberculous."

Dr. R. J. Callander, of Tucson—"Bronchiectasis,—Diagnosis and Treatment."

Dr. E. W. Phillips, of Phoenix—"Asthma in the Tuberculous."

Dr. J. L. McKnight, of Tucson—"The Differential Diagnosis of Diseases of the Chest from an X-Ray Standpoint."

Dr. Philip B. Newcomb, of Phoenix—"Blood Cell Volume Index in Pulmonary Tuberculosis."

Dr. Victor Randolph, of Phoenix—"Newgrowths in the Lung."

For the first time in the history of the Association, there will be a proper representation of the industrial physicians and surgeons on the program, consisting of a group of seven papers, as follows:—

Dr. Wm. B. Watts, of the Miami-Inspira-

tion Hospital, at Miami—"Fractures of the Spine and Pelvis," with lantern slides.

Dr. C. R. Swackhamer, of the Magma Copper Co., at Superior — "Industrial Hernia."

Dr. N. C. Bledsoe, of the Calumet & Arizona Hospital, at Bisbee—"Lung Disabilities other than Tuberculosis and Silicosis Found in Miners."

Dr. George A. Bridge, of the Phelps Dodge Hospital, Bisbee—"Some Problems of the Industrial Surgeon."

Dr. F. T. Wright and Dr. Carl Lund of the Calumet & Arizona Hospital, at Douglas—"Twenty Five Years of Fractures."

Dr. John W. Flinn, of Prescott—"Silicosis."

Hon. John Mason Ross, of Bisbee, will present a paper on some medico-legal phase of industrial work.

The securing of this group of industrial papers reflects great credit upon the energy and influence of the Program Committee.

On the general program there will be papers by the following:—

Dr. Orville H. Brown, of Phoenix—"Vaccine Therapy."

Dr. R. D. Kennedy, of Globe—"Some of the Most Common Static Deformities of the Feet."

Dr. Joel I. Butler, of Tucson—"X-Ray Burns."

Dr. W. G. Schultz, Tucson—"Medical Urology."

Dr. D. F. Harbridge, of Phoenix—"Trachoma."

Dr. Chas. S. Vivian, of Phoenix—"Treatment of Syphilis of the Nervous System."

Dr. W. Warner Watkins, Phoenix—"The Value of Basal Metabolic Determinations."

Dr. H. A. Reese, Bisbee—"Conservative Obstetrics."

Dr. Victor Gore, Tucson—"Intestinal Obstruction."

Dr. E. A. Duncan, of El Paso, will be on the program with a paper on some department of internal medicine.

Dr. H. T. Bailey, of Phoenix, will have a paper on "Thyrototoxicosis from Tonsillitis."

No section of the state is more delightful to visit than Cochise County, and it is hoped by the local Entertainment Committee that most of the members will bring their wives. An elaborate scheme of entertainment has been planned.

The stag function, or smoker, will be held at Agua Prieta on the night of April 16th, and on the same evening a party will be held for the visiting ladies at the Country Club in Bisbee.

The annual dinner and dance will be

held at the Country Club at Bisbee the night of the 17th, for members, visiting ladies and guests.

For the golf enthusiasts of the Association, mention is made of the Bisbee course which is considered to be the wickedest in the Southwest—the eighteenth green being five miles from Naco, the nineteenth being over the line. The course is in splendid shape.

For members and visitors to whom a visit to a mining community will be a novelty, Bisbee offers many wonders. The steam shovel operations on Sacramento Hill, where a mountain is being removed bodily from the center of the city, the immense mill near the country club and underground trips into the mines, are all scenes worth going a long ways to witness. These workings which are usually closed to visitors will be open to the members and guests of the Association.

The completed program will appear in the April journal, about a week in advance of the meeting.

EL PASO CITY HEALTH DEPARTMENT: PRENATAL AND POSTNATAL CLINIC

HARRY H. VARNER, M. D.
EL PASO, TEXAS

(Read before the El Paso County Medical Society, at El Paso, Texas.)

One of the problems of great importance before the medical profession today is an improvement in obstetrical condition and maternal welfare. Maternal welfare work is being sponsored not only by the medical profession but also by lay organizations, cities and communities. It has become almost national in its scope by the passage of the Shepherd-Towner Law.

We gather from statistics that in the United States the mortality among women during the child bearing period, from conditions arising during pregnancy and childbirth, is second only to that of tuberculosis, and that the United States ranks fourteenth among the civilized countries of the world in its mortality rate from causes due to child-bearing. When we consider the progress that has been made in the last two decades in other fields of medicine, in comparison with the above existing conditions, is it any wonder that the public in general has been awakened and demands that mothers be given better care during this important period of their lives?

The first public maternal welfare work attempted in this country on a large scale, was sponsored by a lay organization, and begun in Boston in 1909. Their object was

to educate the mother as to her responsibilities during this period and to secure for her the proper medical and nursing care during the prenatal, intrapartum, and postnatal periods. Since the beginning of this work in Boston many other cities, communities and public health organizations have adopted similar plans. The study of the reports from these well established centers shows a very favorable improvement as a result of this supervision, as noted in a decrease in the number of abortions, stillbirths, toxemias, and maternal mortality.

What is El Paso doing to improve similar existing conditions? Since the population of El Paso is about one-half Mexican, and the records for 1922 and 1923 show that about fifty-one percent of births were attended by Mexican midwives, it was here that the first piece of maternal welfare work was attempted in this city. This work was begun in 1920 by Drs. Rawlings, Rodarte and Armendarcz. During the fall and winter months these physicians gave a course of lectures and demonstrations to the midwives of the city. These lectures and demonstrations were well attended by the midwives, and this has proven to be a very constructive work. For example, al-

most immediate results were realized in the decrease in the number of cases of ophthalmia, occurring each month.

The next step in this work was undertaken in 1922 after the reorganization of the City Health Department. With an addition to the nursing staff, the work of the midwives was checked up more closely. Some of it was found to be so poor that it was deemed necessary to take some immediate action to improve the existing conditions. A city ordinance was passed requiring midwives to pass a physical examination and literacy test; also an examination in protective obstetrical methods. A midwife board was established to conduct these examinations and make recommendations to license those who were qualified. This resulted in reducing the number from eighty-four, who were known to be practicing, to twenty-seven who qualified on examination. At the present time there are thirty-three who are licensed to practice, and these are required to have a physical examination once a year.

Since 1920 there has been given no regular course of instruction to the midwives; however, a monthly meeting is held under the direction of the Chief City Nurse, at which time the midwives are given talks on obstetrical methods, the care of mothers and babies, as well as being cautioned not to assume responsibilities in abnormal cases. These meetings are fully attended and excellent cooperation has been secured from the midwives in the majority of cases.

About July first, 1923, a prenatal and postnatal clinic was started under the supervision of the City Health Department. This was done in order that cases attended by midwives could have medical supervision during the prenatal period and a postnatal examination, and also as a direct line of attack upon the stillbirth and infant mortality rate in the city.

When an expectant mother registers at the clinic a brief obstetrical history is taken and recorded, particular attention being given to the history of previous labors, abortions, stillbirths, and the name of the midwife engaged. The mother is supplied with literature concerning herself and expected baby, which is distributed by the State Health Department. A general physical examination is made, including heart, lungs, superficial glands, skin, blood pressure and a routine urinalysis. The Wassermann test and smears are taken when indicated. If these two latter tests prove positive they are referred to the venereal clinic for treatment.

The obstetrical examination consists of

examination of the breasts, abdominal examination and diagnosis of position, engagement, pelvic measurements in primipara and cases giving a history of previous difficult labors. Unless there are specific indications, only one internal examination is made, and this during the last two months of pregnancy. After this examination the mothers are advised to return at regular intervals, once a month during the earlier months and once every two or three weeks during the last two months of pregnancy. At these return examinations the blood pressure is taken, limbs examined for edema, any change of fetal position noted and urinalysis made. The expectant mother is questioned concerning her diet, care of bowels, clothing, etc.

When an abnormal condition is detected at the clinic, which may cause trouble during labor, the patient and midwife are advised that she should go to the hospital or a physician should be engaged for the confinement.

Another feature of this work upon which the clinic is dependent for success is the follow up visits by the nurses. At these visits the mother is advised as to what articles she should have ready for herself and baby at the time of confinement, how to care for the baby and herself, and thru these visits we are able to keep in contact with cases that require closer supervision, and have them return to the clinic oftener than the regular visits, when necessary. Another feature emphasized by the nurses is to try and impress upon the mothers the importance of nursing their babies. In this particular, if these mothers can be taught the advantages to be gained by nursing their babies, it will no doubt play an important part in helping to lower our present high mortality rate among the Mexican infants of the city.

Mothers are instructed to return to the clinic within a month after delivery for a post natal examination. At this time the mother is questioned concerning diet, constipation, breast nursing and pelvic symptoms. An examination of pelvic organs and birth canal are made and recorded. Frequently such conditions as subinvolution and retroversion can be corrected or benefited by simple measures when instituted early.

The object of this paper is not to give statistical data but to acquaint you with this phase of work that is being carried out under the supervision of the City Health Department. During the first year ending June 30, 1924, there were registered at the clinic 560 cases. Of this number 437

were prenatales, 93 were for postnatal examination only and 30 cases not pregnant, or had some other condition.

There are two things in particular which seem to indicate that this work is needed and will assure the future results hoped for in this city. First, the mothers are very cooperative and seem anxious to learn more about the care of themselves and their babies. Second, it is with increasing readiness that the midwives are sending their cases into the clinic for supervision and examination.

HARRY R. VARNER, M. D.

EL PASO COUNTY MEDICAL SOCIETY (January 5, 1925)

This meeting was a continuation of the annual meeting. Annual reports were made by the Librarian, Legislative Committee and the Secretary-Treasurer.

Dr. W. W. Waite, the retiring president, made an address in which he emphasized the importance of cooperative practice among physicians as being of more importance than group practice. Following this address the officers of the society for 1925 were installed. Dr. John A. Hardy, president for 1925, made an address in which he correlated some of the important things that should be accomplished by the society during the coming year.

Dr. Hugh Crouse, chairman of the County-City Hospital Committee, made a report to the society as to the work that is being done by the joint County-City Hospital Committee in planning for a new County-City Hospital. Dr. Crouse brought several points before the society for discussion. These were discussed at length by members of the society, expressing the sentiments that El Paso needs a new County-City institution which will not only take care of the present needs of the county and city but should be planned with a view to the future needs of hospital facilities.

The question of selecting a staff for this institution was discussed at length by the members. It was decided that it would be better to have a rotating staff on each service, and that the hospital staff should work in the relative city clinics, thereby establishing medical contact between the clinics and the hospital.

The business of the evening being over the society adjourned for refreshments as guests of the new president.

EL PASO COUNTY MEDICAL SOCIETY (January 12, 1925)

The meeting was called to order at 8 p. m. by Dr. John A. Hardy, president. There were twenty-nine members and three visitors present.

Col. M. A. W. Shockley, Commanding Officer William Beaumont Hospital, announced that positions as internes in government hospitals were now open to recent graduates in medicine, these appointments to carry the pay of First Lieutenant and rank of First Lieutenant in the Reserve Corps.

Dr. H. H. Stark presented a paper on "Tuberculosis of the Eye and Its Relation to General Medicine." Dr. Stark's paper presented a very thorough discussion on the subject, not only from the view point of the specialist, but also for the general practitioner. Dr. Stark's paper was discussed by Drs. Davis, Leigh, Werley and Schuster.

Dr. Orville Egbert read a paper on "Mechanical Problems in Pulmonary Tuberculosis." Dr. Egbert

showed the importance of selecting the cases that required these types of treatment, illustrating his paper with some excellent lantern slides and photographs of pathological specimens. Discussion by Drs. Scott, Cassellas, Riley and Craig.

Dr. James Vance reported a case of eclampsia in a primipara delivered by Caesarean section. In his case the baby was resuscitated for ten or fifteen minutes after delivery before the placenta was removed from its uterine attachment, the mother and child making an uneventful recovery. Case discussed by Drs. Craig, W. L. Brown, Cummins and Rawlings.

Dr. G. Werley reported a case of gangrene of the left leg occurring in a patient having a dilated heart and mitral stenosis. Amputation was done under spinal anesthesia. Discussed by Dr. W. L. Brown.

Dr. Allen Craig of Chicago, a director of the American College of Surgeons, was introduced. Dr. Craig discussed Dr. Egbert's paper and was especially pleased to note that Dr. Egbert's paper was based upon his own pathological specimens and not upon statistics of others.

Dr. Craig extended an invitation to the physicians of this section to attend the sectional meeting of the American College of Surgeons, which is to be held at El Paso February 6th and 7th.

EL PASO COUNTY MEDICAL SOCIETY (January 19, 1925)

Meeting called to order at 7:45 p. m. There were present thirty eight members and three visitors.

Dr. W. M. Branch showed a case of leprosy in a Mexican man about fifty years of age, the disease being of four years duration. There is no involvement below the neck. Dr. Geo. Turner made sections in this case about a year and a half ago. He found the bacilli present in the sections, but found none in the nasal secretions.

Dr. Geo. Turner read a paper reporting "Fifty Cases of Hay Fever Treated with Local Pollens." Dr. Turner shows that a large number of these cases are relieved entirely, others benefited, and about twenty per cent show no improvement. Dr. Turner says that much better results are obtained, with the pre-seasonal than with the co-easonal treatment, and the period of treatment is usually shorter. Dr. Turner says that each case should first have a nose and throat examination to rule out any infectious cause of the disease, before pollen sensitization is begun. Discussion by Drs. Werley, Davis and Leigh.

Dr. W. R. Jamieson read a paper on "Stricture of the Ureter." Dr. Jamieson illustrated his paper with a number of lantern slides of pyelograms. Discussion by Drs. K. D. Lynch and P. R. Outlaw.

Dr. W. W. Waite showed a pathological specimen of heart and large vessels. The only history given was that the man was found dead in bed. The specimen showed a large cardiac infarct extending into the large vessels and coronary arteries.

Dr. Orville Egbert was appointed chairman of a committee to make general arrangements for the meeting of the Southwestern Medical Association to be held in El Paso, the date to be announced later.

EL PASO COUNTY MEDICAL SOCIETY (January 26, 1925)

Meeting called to order by the president at 7:45 p. m. There were present twenty-four members and three visitors.

There were no papers on the program for this meeting, it being devoted entirely to clinical cases and case reports.

Dr. Andreas Villareal showed a case of aneurism of the outer portion of the subclavian artery and paralysis of the left arm. This resulted from a gun

shot wound about four months ago. Dr. Villareal proposes to ligate the artery and later remove the aneurism and do a suture of the nerve.

Drs. W. L. and C. P. Brown reported a case of a rare tumor which is probably a hypernephroma of primary origin occurring outside of the kidney, (q. v. elsewhere in this issue.)

Dr. G. Werley made a complete report of cardiac case of which he made a partial report on January 12, 1925. In this case the patient later developed gangrene of the other leg and died. Dr. Werley showed the specimen of the heart and large vessels. The specimen showed the heart packed full of blood clot in all its chambers and extending into all the large vessels and coronary arteries, the oldest clot being in the left ventricle.

Dr. James Vance reported a very interesting case of a brain tumor occurring in a man fifty-four years of age. The symptoms began about two and a half years ago. The specimen of the brain showed a pear shaped tumor the size of a small pear, located in front of the island of Reil, which probably originated from the choroid plexus.

Dr. G. Werley showed a specimen of heart and large vessels, of a cardiac infarct, occurring in a man 63 years of age. The specimen showed a rupture of the muscles of the left ventricle extending almost into the right ventricle. The rupture is packed with blood clot, also antemortem clots in the heart and pulmonary artery.

A committee was appointed by the president to select a temporary staff for the County-City Hospital. Drs. T. J. McCamant, chairman. Paul Gallagher, H. O. Darnell, C. P. Brown and F. O. Barrett.

PIMA COUNTY (Ariz.) MEDICAL SOCIETY

The regular meeting of Pima County Medical Society was held February 10, 1925, at the Old Pueblo Club, Tucson, Arizona, the newly elected president, Dr. S. C. Davis, presiding. Minutes of the previous meeting read and approved with one correction.

Dr. S. H. Watson, in charge of the scientific program for the evening, presented Dr. J. F. McKnight of United States Veteran's Hospital No. 51. The subject of Dr. McKnight's address was "The X-ray as an aid to Diagnosis" and a beautiful series of plates was shown in illustration of the various points made. Drs. Butler, Callender, Mills, McFaull and Watson participated in an appreciative discussion.

Under unfinished business, the secretary read a letter from Dr. W. O. Sweek, secretary of the State Board of Medical Examiners, relative to the only practicable method of procedure against a certain physician of Tucson notorious for the practice of criminal abortion; i. e., that if the County Attorney has evidence sufficient to sustain the Board in the revocation of such a man's license to practice, he would also have evidence enough to prosecute a criminal charge before the Superior Court. A general discussion of the subject and of the suspected man's activities followed with the resulting motion by Dr. C. A. Thomas, seconded by Dr. W. G. Schultz, that the matter be referred to the Board of Censors for any further action and specifically as to the possibility of blocking this man's efforts to obtain United States citizenship in an application understood to be pending in the Federal Court. Under miscellaneous business, a letter was read from Dr. E. J. McCormick, Secretary, Academy of Medicine of Toledo and Lucas County, Ohio, regarding a transfer to the Pima County Society of Dr. E. F. Vetter. Moved by Dr. C. A. Thomas, seconded by Dr. R. C. Callender that this matter be laid on the table pending a definite application for membership upon the part of Dr. Vetter.

The Board of Censors reported favorably upon the application for membership of Dr. B. L. Wyatt and he was elected by vote of the Society. The Board of Censors reported unfavorably upon the application for membership of Dr. Fred Valles and his application was unanimously rejected by vote of the Society.

Dr. S. C. Davis laid before the Society the matter of the activities of a layman treating tuberculosis in Tucson, with a secret remedy and claiming to have medical supervision for his cases with laboratory and x-ray reports. Discussed by Drs. McKnight, Patterson, Clyne, Watson and Newcomb. Dr. Clyne brought up the question, recently occurring in the malpractice suit, of a physician being unable, under the law, to testify concerning the case of a patient whom he has formerly attended and advanced the idea that this situation could be remedied by appropriate legislation at this session of the legislature. Discussion developed the sentiment that time was lacking for any effective effort at present and by this county society alone. The president referred the subject to the Committee on Public Health and Legislation, the members for 1925 being named as follows: Drs. C. W. Mills, S. H. Watson and P. B. Newcomb. This committee was instructed to prepare a resolution on the above subject for presentation to the other county societies and to the similar committee of the Arizona State Medical Society.

Adjournment followed.

PHILLIP B. NEWCOMB, Secretary.

PIMA COUNTY (Ariz.) NEWS

DR. BERNARD L. WYATT has recently located in Tucson. Dr. Wyatt is a graduate of the University and Bellevue Hospital Medical College of New York, and was formerly on the staff of the Trudeau Sanatorium. He was the organizer of the Blue Grass Sanatorium of Lexington, Ky. During the war he was Medical Director of the Rockefeller Commission for the Prevention of Tuberculosis in France, succeeding Dr. James Alexander Miller. For his service Dr. Wyatt was awarded the Gold Medaille de la Reconnaissance Francaise and was made a Knight of the Legion of Honor. Since 1921 he has been Secretary of the Technical Board of the Milbank Memorial Fund, a highly endowed organization, conducting, among rural and urban population of New York State, research tuberculosis work. Dr. Wyatt will be associated with Drs. Jeremiah Metzger and C. W. Mills, specializing in tuberculosis.

The recent suit for malpractice against Dr. J. I. Butler brought in behalf of the late Mrs. Lucille Holloway, resulted in a verdict of \$1000.00 for plaintiff, in place of the \$15,000 sued for. Motion for new trial is now pending and inasmuch as the verdict seems contrary to the facts brought out in the trial, there seems little question that there will be an eventual reversal. One juror stated that the reason for the verdict against Dr. Butler, was the allegation that Dr. Butler left the room for a few moments during the x-ray treatment, although it was admitted that the length of treatment, was not affected by his temporary absence and no errors in technic were alleged. The treatment was for inoperable sarcoma of the groin, which had already involved the skin and the accusation was made that the treatment hastened the inevitable death of the patient.

Dr. E. O. Jordan, Professor of Bacteriology at Rush Medical College, gave an address at the University of Arizona, on February 19th, his subject being "Botulism and Food Poisoning."

Increasing
the
Nutritional
Yield
of
Milk-
23%

THE protective colloidal ability of pure, plain gelatine, in preventing the curdling of milk by the enzyme rennin and hydrochloric acid of the gastric juice, is one of the most important discoveries relating to milk nutrition.

Thomas B. Downey, Ph. D., of Mellon Institute, University of Pittsburgh, has determined by standard feeding tests that 1% of pure, plain gelatine, dissolved and added to milk, increases the nutritional yield by about 23%.

The standard formula used by Dr. Downey for infants, is as follows:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in ½ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method, but in the proportion of ½ teaspoonful of gelatine to a glass of milk.

In infant feeding the gelatine may be added to any regular formula prescribed by the physician.

To safeguard against impurity and disturbing acidity it is essential to specify Knox Sparkling Gelatine, the Highest Quality for Health.

A package of Knox Sparkling Gelatine, together with the physician's reference book of nutritional diets with recipes, will be sent free to any physician, upon request, if he will address the Knox Gelatine Laboratories, 438 Knox Avenue, Johnstown, N. Y.

ST. JOSEPH'S HOSPITAL STAFF MEETING

(Phoenix, Feb. 14th, 1925)

The regular staff meeting for February was announced as a continuation of the annual banquet with the following menu:

SOUP

Dr. Bannister will discuss digitalis therapy in pneumonia and allied conditions and the differentiation of pneumonia from appendicitis.

(a) Case of sudden death in a bronchiectatic patient.

(b) Case of influenza pneumonia in an old tuberculosis patient.

(In the Exec Com., Dr. Gudgel said give small doses of digitalis and repeat often; Dr. Brockway said give a lot and not so often; Dr. Wylie said give none and repeat the abstinence frequently).

SALAD

Pathological phases, at autopsy, of three cases dying in hospital. Dr. Mills will open discussion.

(a) Case of apparent acute alcoholism.

(b) Case of general peritonitis and pneumonia in newborn infant.

(c) Case of death following extensive burns.

FISH

Dr. Carson will discuss anesthetic difficulties, based on two cases:

(a) Excision of vulva for kraurosis vulvae and possible cancer.

(b) Attempt to remove pituitary tumor causing blindness.

ENTRE

(a) "What in Hell ails Roger Hunt?" Is it an internal medicine case, or a surgical case?

(b) Case of patient who was "Relieved" of his ureteral stone.

Dr. Smith will present these for discussion.

DESSERT

Case of intra-abdominal bleeding following childbirth, with infection of the abdominal fluid. Use of pituitrin.

Dr. Drane will open discussion.

There was so little connection between Case I, and the subject assigned to Dr. Bannister, that the details of the case are omitted. It was an influenzal pneumonia, of the lobular type, who died in the hospital. Dr. Bannister arriving a few minutes late, Dr. Wylie took the time to defend his position with regard to digitalis.

Dr. WYLIE stated that he had been accused of not using digitalis and there is more truth than poetry in this; was taught that digitalis makes the heart muscle contract more slowly, more thoroughly and with stronger force, so that his rule has been to use it very sparingly and only when the heart muscles are giving out. If it is true that its cumulative action is dangerous, it is equivalent to whipping a tired horse. When the heart begins to fail and we apply the whip, it has always seemed that those people died the quickest. One thing is certain and that is that we are off on the treatment of pneumonia. In textbooks of a hundred years ago, you will find that the treatment of pneumonia was to withdraw 20 ounces of blood and if that did not relieve the symptoms in 12 hours, draw off 20 ounces more; at the same time give 20 grains of calomel and follow that in two hours with salts and infusion of senna; in connection with this line of treatment, give antimony and tartrate to make the patient nauseated. Certainly we would say that this line of treatment would lower resistance and hasten death, yet in the same chapter you will find that their mortality was 25 per cent. In Osler & McCrae's Medicine, you will find that the hospital mortality of pneumonia is still 25 per cent; Anders says that the rate between the ages of 20 and 30 is

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30 per cent, and it increases with age. The doctors who gave antimony and tartrate and bled them and then tried to ease them with calomel, salts and senna, could not have done anything else than injury and increase the mortality; yet the figures which come to us do not show that we are doing much better, and if we are not doing better, we are using remedies that tend to increase the mortality.

DR. BANNISTER: Figures can be misleading; the latest hospital mortality of pneumonia is about 22 per cent, but the general mortality will run below 20 per cent. It is usually sicker patients who are sent to the hospitals, and their statistics get into print. There has recently been a reversion to the old quinine treatment of pneumonia, and some very extensive reports on the treatment with quinine and urea, and the death rate in certain hospitals has been reduced to 9 and 12 per cent.

Do not believe the use of digitalis is like whipping a tired horse; that applies to strychnine and camphor, but digitalis is a tonic to the heart; it rests the heart by slowing the pulse, so that if we reduce the heart contractions 20 beats a minute, in the course of an hour we have given that heart muscle considerable rest; it is more like giving food to a tired horse. It had not occurred to me that some doctors do not use digitalis in pneumonia, except that some of us have tonics that we like better. All the medical men I have known have used digitalis, and they are divided into two groups,—those who believe in small doses from the very beginning and those who prefer to wait until they think the crisis is imminent and then give it to carry over the critical stage. If we stick to the therapeutic indications, more of us will use it from the beginning. It takes practically three days for digitalis in small doses to show its effect (10 to 20 drops), by slowing the pulse and raising the diastolic pressure. A great many pneumonias have the crisis on the third day, others on the fifth day, and since we do not usually see our pneumonias at the very outset, if we try to wait, we do not know how long they will last. We do know that it will take digitalis at least three days to take effect, and it seems that it should be given from the start, if we want the effect at the crisis. There are some who use larger doses at the precritical period,—1 to 2 drachms of the tincture or hypodermics of digitalin, etc., but have never been able to see the argument in favor of that method of treatment; the crisis may come before we expect it, and why is it not more logical to gradually bring the heart into condition, instead of using a poisonous dose for sudden effect on the heart?

Was asked to discuss the differential diagnosis between pneumonia and appendicitis probably because I recently saw a case in consultation which was thought to be appendicitis and proved to be pneumonia. We do not often see a case of pneumonia that we are apt to confuse with appendicitis, but occasionally appendices are removed in patients with pneumonia. The question most frequently arises in children. In this particular case, the child was about eight years old, had a cold, was coughing and expectorating; had been sick several days; had temperature around 102-103; had abdominal pain and rigidity. Physician called a surgeon, who examined the abdomen, found rigidity, had blood count which showed 34,000 and advised immediate operation; he was sincere and the child may have had appendicitis. The cardinal symptoms of pneumonia are sudden onset, usually with chill which may be absent in children as in this case; temperature is usually higher than in appendicitis and more sustained; cough, which may or may not be present in appendicitis though the pneumonic cough is differ-

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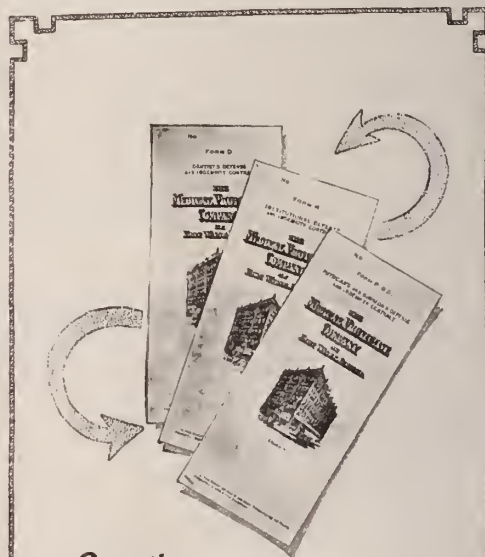
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ent; pain is usually in the chest but in the confusing cases it is in the abdomen, as in this case; rigidity, when there is a question of appendicitis, the pneumonic rigidity will be rather general instead of confined to the appendix region; the white count in pneumonia is nearly always over 20,000 frequently above 30,000. In appendicitis pain is usually localized over the appendix and rigidity usually localized there; temperature is not so high as in pneumonia and the white count is rarely higher than 20,000; cannot recall a case of appendicitis with white count over 20,000. If the examination of the patient is complete, there should be no mistake. Given a child with pneumonia, when he is stripped the first inspection will show a rather marked dyspnea, being 40 in the case in question; there will be a marked difference in the expansion of the two sides, which is a sign usually overlooked, because it is not looked for closely enough. This case was a central pneumonia localized; there will be diminution in breath sounds if central, or pleural signs if on the surface. The two differential signs in this case was the lack of expansion of the chest and the white count which was too high for appendicitis.

DR. STROUD. Agree with most of what Dr. Bannister has said about digitalis. It is the diastole you wish to increase because that is when the heart rest. Likes to give a lot of digitalis early. If you are going to give rest, why wait? You should know that your solutions are standardized and how long the bottle has been open; to prescribe ten drops every three hours, when you do not know the size of the drop or the purity of the drug is blind treatment. There must be some virtue in the drug, when it is used so much and when its action has been studied so exhaustively, but a drug like that should be used properly. Recall a case of diphtheria in which the child was blue and heart going to pieces, being enlarged and dilated. Child was taking 5 drops three times a day, and all the time it had been taking the drug, it had gotten no effect. The child was given the full dose in cat units, measured in a hypo, and the effect was secured in six hours. Do not think a drachm of digitalis is poisonous. Think in pneumonia you should get the patient under digitalis early and with full doses. Think that three drachms is a good dose.

DR. GUDGEL: Am not quite convinced about drachm doses of digitalis. Start the ordinary patient on 15 to 20 minims every four hours or four times a day; this will give sufficient effect to carry the heart over the crisis. If you wait for the crisis to give digitalis, it is too late. The average dose of a good tincture is $7\frac{1}{2}$ to 10 minims. If you start digitalis early and support the heart up to the time of the crisis, you can then control the heart with less dose. If you wait for the crisis and try to control it with teaspoonful doses, you may fail.

DR. FAHLEN: This is an interesting subject and one that is arousing much discussion. Think it is utterly worthless in pneumonia. Statistics are very misleading; if you study the figures on pneumonia from large centers, you will find that they vary in different winters from 3 to 60 percent mortality; had we used digitalis during the period of three per cent mortality, we would have thought we had something; during the period of sixty per cent mortality, we used everything, phylacogen, serum, camphor, digitalis, etc., without effect, so that the matter of statistics of pneumonia mortality depends on the virulence of the infection. We had a type of flu the first year which was very fatal, and it was not a good year to gather statistics, or to judge the effect of any treatment. In one series of about 500 cases in the City Hospital in St. Louis for two years, we gave every alternate case digitalis, and our mortality in the two groups was practically



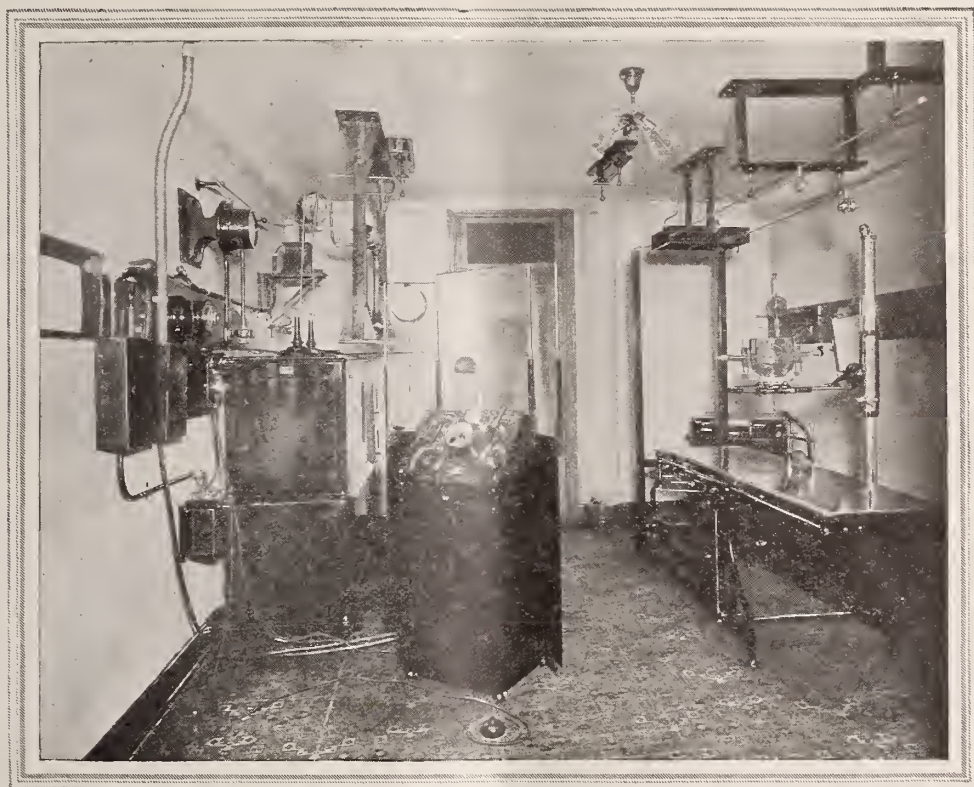
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the same. Our plan was very much like Dr. Banister's,—to give moderate doses of the standard preparation early, with the idea of supporting the heart. I still give digitalis and give it early, but cannot say that the results are better than in those that are let alone. Pneumonia is a self limited disease and except when the heart fails at the crisis, stimulation is not needed. Do not think digitalis will bring down a pulse when the heart is going to pieces in pneumonia. In pneumonia the heart is undergoing a continuous degeneration and you cannot do anything with a heart muscle that is undergoing fatty degeneration, or even cloudy swelling. The effect of digitalis is on the vagus filaments, and when the muscle is fatigued instead of degenerated, you can get effect, but in acute infections the pathology of the heart muscle is that of increasing disintegration due to cloudy swelling and fatty degeneration.

DR. TUTHILL: Part of what everybody has said seems true. Was much impressed with what Dr. Fahlen said, that this year you may be very certain that digitalis has cured every pneumonia case, while next year you will be just as sure it has killed them. Remember the year creosotal was first called to our attention; was then located at a mining hospital where the weather was moderately severe and we had every year from 20 to 50 cases of pneumonia among the miners. The first year we used creosotal, thought we had the world by the tail and a downhill pull; every case of pneumonia, without exception, got well. We went into the next winter with the idea that pneumonia would merely take up bedroom for a time and would then be well. When we came to we had lost nearly 75 per cent of the cases under exactly the same treatment as that given the previous year. I do not think digitalis does any good; use it because I do not have the moral courage to quit. Used to think that when the blood pressure came down and we could get it back up, we had a chance; about this time some

guy proved that the low pressure cases did as well as those with a high pressure. As I say I still use digitalis in fairly large doses,—20 to 30 minims repeated every 4 to 6 hours, beginning on the first day, but have the feeling that it does not help at all.

DR. WATKINS: One point in the differentiation of pneumonia and appendicitis. If there is any question at all, it can be settled in thirty seconds after the patient is placed upon the fluoroscopic table. Lobar pneumonia, especially in children, shows a distinct density from 24 to 48 hours before detectable physical sounds are present. In the hospitals for children throughout the country it has become the universal practice to x-ray the chests of all patients suspected of having pneumonia, in order to detect the early consolidation.

DR. H. P. MILLS presented the pathological findings in three cases autopsied during the previous month, as follows:

- (1) Acute alcoholism in a syphilitic.
- (2) General peritonitis in infant.
- (3) Extensive burn.

Case No. 1, a well nourished white man, 45 years of age, entered in semicomatose condition; when partially aroused said he had been drinking bootleg whiskey. Pupils were unequal, left being considerably larger, no response to light; apparently almost blind. Lungs and heart normal. Abdomen rather distended, soft without areas of tenderness or rigidity; arms and legs in somewhat rigid state, patellar reflexes absent, no Babinski, no ankle clonus, very noticeable dullness in sensation.

Urine normal; white cells 13,000, 74% polys; blood sugar .15%, Wassermann three plus positive.

At autopsy only the brain was removed, this showing considerable superficial edema, with engorgement of the meningeal blood vessels. No hemorrhage or gross pathology found; pieces of brain tissue with meningeal vessels and pituitary gland sent to laboratory. Pathologist's report was



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LOS ANGELES

that sections of brain cortex showed no definite cellular changes, vessels being somewhat dilated but without histologic changes; sections of pituitary showed no pathology. Sections of basilar artery showed large plaque encroaching on lumen, the deposit being subendothelial and inflammatory, with central softening and fatty change, in all probability a luetic endarteritis.

The history and gross changes of edema and vascular engorgement would be consistent with wood alcohol poisoning,—the syphilis being incidental.

Case No. 2 was a white male infant, one month old. Seen by physician on Jan. 12th, who found the scrotum swollen; in consultation with surgeon attempt to pass catheter failed and filiform was tried and this failed; father said a small amount of urine had appeared during last 24 hours, but not much. A hypo needle was introduced into scrotum and small amount of cloudy fluid withdrawn; at laboratory streptococci were found with pus cells.

Baby was said to have been healthy up to three days ago. On examination there was muscular defense over lower abdomen and some distension. Operation was done under pre-operative diagnosis of urethral stricture.

Surgeon's record was that abdomen was opened and much cloudy peritoneal fluid with flocculent material found. Appendix was markedly inflated and adherent and was removed. Small intestine and colon adherent to abdominal wall and liver. Abdomen closed with drainage.

Pathologist's report on appendix was that there was a diffuse inflammatory infiltration without necrosis.

Baby died two days later. At autopsy, the small intestines, large intestines, stomach and liver were matted and held together by plastic adhesions; a small amount of cloudy, yellowish fluid was found in peritoneal cavity. Heart showed nothing remarkable; the lower lobe of right lung showed typical red hepatization of pneumonia. Kidneys apparently normal but with petechial areas in the cortex. Bladder was empty, without evidence of gross pathology; urethra not opened.

Autopsy Diagnosis,—general peritonitis, lobar pneumonia, acute hepatitis, congenital stricture of urethra, acute nephritis.

Case No. 3, married man, 30 years of age, was severely burned over the arms, legs, chest and back, by explosion of oil stove. Was in great shock and continuous emesis, dying same day.

Post-mortem findings: Extensive burns of first and chiefly second degree, involving greater portion of legs, with large areas on posterior and anterior surface of trunk.

Lungs showed no gross pathology. Heart not enlarged; no pericardial pathology; epicardium shows numerous white, thickened areas; tricuspid orifice greatly dilated and valve leaflets thinned; right ventricle walls show thinning of muscle and excessive fat deposits with cavity dilated; pulmonary valve normal. Mitral valve greatly thickened from sclerosis and contraction, and orifice definitely narrowed; left ventricle normal in size, with walls about normal thickness. No sclerosis of coronaries. Findings are those of chronic endocarditis with dilated right ventricle.

Gastro-intestinal tract shows diffuse and marked hyperemia, and the liver and kidneys show marked hyperemia, section showing excess of blood. Microscopic section of heart muscle showed no abnormality of muscle structure.

In connection with this case, Dr. Mills presented a discussion of the pathology of burns,—local and

systemic. This discussion is printed elsewhere in this issue of the journal (q.v.)

DR. BANNISTER, referring to some reports in Dr. Mills' discussion, raised the question whether it would be proper treatment to anesthetize a severely burned patient and remove the burned skin; to accomplish the purpose it would need to be done in the first few hours and that is the period of shock.

DR. DRANE recalled a case of a high school girl who was burned over the entire body surface; after being burned, she assisted her father to carry water to fight the fire; they stopped the fire and she got into a buggy and came to town and had her wounds dressed. She was burned about six o'clock, was dressed about 7 or 7:30, went home, became unconscious about midnight and died the next morning about nine o'clock. It is a question whether shock comes immediately after the burn, or later when the toxemia develops. A good many years ago they taught that if the skin was varnished with some non-toxic material, so it could not function, death would ensue. When the skin is burned, it will not function. Is that shock or toxemia because the skin cannot excrete?

DR. CARSON: With regard to the baby. Do not think he had appendicitis. The hospital record does not say that the mother had what we call "flu." Just about the time she got well the baby developed a disturbance in the bowels, with some improvement following castor oil. You will notice that the pathologist reported that the appendix was only in the first stage of appendicitis, and yet there was a general peritonitis with a pneumonia. Believe it was a general streptococcus infection with suppression of urine from kidney infection.

DR. VIVIAN inquired about attempt to pass fili-




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forms into bladder and questioned the diagnosis of congenital stricture of urethra.

DR. HOLMES asked about the significance of the finding of urea in the scrotal fluid.

DR. SWEET stated that it was a question about the stricture; under anesthesia a small sound was passed with some difficulty.

DR. MILLS does not think a general peritonitis is likely to occur without some local cause.

DR. SWEET stated that the most intense focus of infection was about the appendix; does not think there was any pneumonia until after the operation. Autopsy showed a general peritonitis and local conditions would indicate an extension from the appendix; thinks the fluid in the scrotum was an extension downward of the peritoneal fluid.

DR. WYLIE announced that there was a fly in the "soup," because Dr. Holmes had a case listed there and he wished to substitute another for it, which shows more interesting lung conditions.

DR. HOLMES presented history of patient, man age 29, who was in good health until Sept., 1923, when he contracted a "cold" and was found by Dr. P. K. Brown, of San Francisco, to have active pulmonary tuberculosis. He spent two months at Alum Rock Sanatorium, San Jose; on returning home, he suffered an exacerbation, following which he was at Oaks Sanatorium, Los Gatos, until Sept., 1924, at which time he was discharged as an arrested case. The lung lesion was confined at this time to a small area in upper left lobe, which is confirmed by x-ray films (film shown). In Oct., 1924, he started to have high fever, which lasted two weeks; he had some cough and expectoration, but it was not bloody nor foul smelling. In December, x-ray showed an increased shadow in upper left, interpreted as activity confined to that area. Two weeks

later he was examined and another x-ray made by same radiologist, showing a marked density over entire left lung field. Came to Arizona last month; has been coughing a great deal, expectorating a moderate amount, has some fever and has lost about ten pounds.

Examination of chest on Jan. 24th showed marked involvement of left lung with diminished mobility throughout; diminished to absent tactile and vocal fremitus throughout except at apex; flatness to second rib in front and at apex posteriorly; dullness elsewhere; breath sounds very distant throughout with exception of apex; no rales except a few dry and almost sonorous rales at left hilus in back. Right lung practically negative. Sputum showed tubercle bacilli. White cells 13,800, 88% polys; Hbg. 85%.

X-ray study of the chest showed an almost entirely dense left lung field, with just sufficient variations in density to indicate that the density was not fluid; apparently very dense pleura, with irregular lung consolidation. For further evaluation of the shadow, 250 c.c. of air was injected into the pleura; when the two layers of pleura were separated, it was seen that the parietal pleura apparently was not involved. The lung densities showed much more clearly, now indicating a diffuse inflammatory process with cavitation. Tuberculosis with accompanying mixed infection and malignancy remained to be considered. Tuberculosis is certainly present, because bacilli are present; whether the remaining shadows are due to malignancy or mixed infection cannot be determined by any evidence yet in hand. Pneumothorax has been continued and lung is about half collapsed at this time.

DR. WATKINS does not think that the shadows presented by the x-ray could be due to tuberculosis.

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It is hardly conceivable to have a tuberculosis producing massive consolidation of an entire lung, without more general signs and local signs. This is consistent with syphilis of the lung, malignancy, or an unresolved consolidation as a sequel of an acute non-tuberculous infection.

DR. SWEEK thinks the involvement is too great and the man has been too well for carcinoma. The clinical picture is not that of carcinoma, although it might be sarcoma.

DR. HOLMES stated that the Wassermann was negative and the sputum negative for unusual organisms. Some one suggested a non-virulent type of tuberculosis, but if it is non-virulent it should not spread so fast.

DR. RANDOLPH recalls the maxim that we should try to cover every clinical case with one diagnosis, when possible. We must remember that in one-fifth or one-sixth of the cases of carcinoma of the lung, tuberculosis is associated; in some it is primary and in some secondary to the malignancy. In a large number of cases the extension of the tuberculosis has been accentuated. Cancer should be strongly considered in this case; it cannot be ruled out or proved at this time. The physical signs do not sound like tuberculosis; evidently there is some factor preventing breath sounds from coming through. After the injection of air, there were many rales, but they were dry and not like a pneumonic process. One or two further things might be done to clear up the case; if the patient continues to get worse, a bronchoscopic examination will be indicated. A majority of lung carcinomas arise in the glands of the bronchi, and a careful bronchoscopic examination would probably reveal something either to the examiner's eye, or a small piece of tissue could be removed. In some cases of carcinoma bits of tumor tissue are coughed up, but this is rare, and when it happens, the tissue is usually necrotic and without characteristic structure. The examination of 4 hour collections of sputum is sometimes of value in hunting for tumor cells.

With the discussion of this case finished, the time for adjournment had arrived, and the remainder of the program was continued until the next staff meeting, in March.

This meeting was one of the best attended staff meetings in the history of the hospital, there being twenty-six members of the staff present, one visitor, three sisters and the superintendent of nurses.

W. WARNER WATKINS, Sec'y.

COCHISE COUNTY (Ariz.) NEWS ITEMS

DR. A. M. WILKINSON, specialist in eye, ear, nose and throat diseases, who has been located in Douglas for several years, announces his removal to Hollywood, Calif., where he will have offices in the Guaranty building.

DR. JOHN COOK, formerly of Bayonne, N. J., and more recently located in Dyersburg, Tenn., has taken over the offices and clientele of Dr. Wilkinson in Douglas.

DR. E. W. ADAMSON, of Douglas, has been appointed acting Medical Superintendent of the Cochise County Hospital.

DR. GEORGE M. REES, of the Medical Staff of the Calumet & Hecla Mining Co., of Calumet, Mich., who has been spending the winter in Douglas, is just recovering from a rather severe case of pneumonia.

DRS. L. J. TUTTLE and N. V. ALESSI, of Douglas, have been appointed local surgeons of the Southern Pacific Lines, subsequent to the merger with the E. P. & S. W.

DR. N. C. BLEDSOE, of Bisbee, attended the Ma-

sonic gathering in Phoenix, in February. He was elected Deputy Grand Master of the Grand Blue Lodge and Grand High Priest of the Grand Chapter R. A. M.

MARICOPA COUNTY (Ariz.) NEWS

DR. JOHN WIX THOMAS, of Phoenix, is slowly recovering from his illness mentioned in our last issue. His pneumonia was complicated by localized empyema and pulmonary abscess, both of which were successfully drained, and he will probably be able to resume his practice about the first of April.

DR. GEORGE A. BRIDGE, of Bisbee, was among the prominent Masons in attendance at the conventions in Phoenix, in February. He was elected Grand Senior Warden, Grand Chapter, K. T.

DR. E. S. MILLER, of Flagstaff, prominent Mason from Coconino County, attended the gatherings at Phoenix, in February.

DR. R. A. HERNANDEZ, formerly of Tucson, has moved to Miami, where he is engaged in general practice in that mining metropolis.

DR. E. J. GUNGLE, of Gilbert, Ariz., is temporarily located in Morenci, Greenlee county.

DR. MARY L. NEFF, of Los Angeles, formerly of Phoenix, Ariz., is giving a series of lectures on Mental Hygiene in the Extension Division of the University of California, as follows: (1) How to Play; (2) How to Work; (3) How to Rest; (4) The Nervous Mechanism; (5) Fatigue; (6) Suggestion; (7) Habit and Personality; (8) Mental Hygiene. Some idea of the ground covered by this may be gathered from the article by Dr. Neff published in this issue of this magazine.

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SOUTHWESTERN MEDICINE

VOLUME IX

APRIL, 1925

No. 4

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INTRACRANIAL BIRTH INJURIES

W. E. JOHNSON, M. D.
El Paso, Texas.

(Read before the El Paso County Medical Society, February 2, 1925)

Of all injuries produced by the trauma of birth, those affecting the contents of the skull, brain and meninges are the most important.

Beneke, who worked out a particular technic in his autopsies, has determined that there is a much larger percent of tentorial and subtentorial injuries than were formerly realized.

Intracranial brain injuries may be classified in two groups, lesions with hemorrhage and lesions without hemorrhage. Lesions with hemorrhage may be subdivided into:

1. Internal cephalhematoma.
2. Subarachnoid hemorrhage.
3. Dural hematoma.
 - a. Supratentorial.
 - b. Infratentorial.
 - c. Mixed types.
4. Brain hemorrhages.
 - a. Ventricular.
 - b. Diffuse or circumscribed.

Lesions without hemorrhage may be subdivided into:

1. Contusion.
2. Ischemia.
3. Slight tentorial tears.

Internal Cephalhematoma—Due to toughness of dura this is not often found to be large enough to produce death. It occurs as a result of injury to bone.

Subarachnoid Hemorrhages—Lie on the surface of the brain and as a rule give rise to no symptoms but may be of sufficient size to produce spasmodic contractions in the extremities.

Dural Hematomata are the most common

type and are venous in origin, resulting from a tear in the tentorian most often in the upper blade.

Brain Hemorrhages are rare. When occurring in the ventricular brain substance, blood drains through the medulla and into the spinal cord.

Intracranial lesions without hemorrhage may be produced by compression of skull bones, but most of them are small and give rise to no symptoms or at least minor ones which soon clear up.

The immediate causes of intracranial injuries are mainly mechanical, produced by extensive or deep depressions and fractures of skull bones, the result of severe pressure exerted by forceps blades or indirectly produced by traction of the head along the projecting portion of the rigid pelvic canal as the promontory of the sacrum, symphysis, spines, exostoses, etc.

A less apparent mechanical cause of trauma occurs in cases where there is no obstruction to labor. The compression of the head by labor causes a certain amount of cerebral fluid to flow into the spinal canal, and a reduction of the volume of blood within the brain produces an actual decrease in the size of the skull contents. During the process of moulding certain diameters of the skull are changed, the longitudinal being lengthened and the lateral decreased.

Subdural hemorrhages are produced by overlapping of the bones in the sagittal sutures during moulding causing a break in the veins entering the longitudinal sinus.

Tentorial lacerations are produced by abnormal extension of the long diameter of

the head. The function of the tentorium being to prevent marked lateral compression when longitudinal moulding is taking place. This same injury may take place during resuscitation by the swinging method of Schultze, while the head is held tightly between the wrists. The tentorium apparently is quite vulnerable even in the normal full term infant, as is shown in occiput anterior presentations, when the parietal bones are compressed against the pubic bones, causing flattening with resulting injury to the tentorium.

It has been demonstrated that in perfectly normal quick deliveries, before the cervix is dilated, and a rigid inner ring is present, the sudden compression without moulding may give rise to a tentorial tear with a resulting hemorrhage.

During the second stage, in the attempt to protect the perineum until gradual dilatation takes place, the pressure exerted in the antero-posterior position may produce an injury to the falx; it may also be done by pressure on the perineum or with a finger in the rectum in the attempt to deliver between contractions.

By giving a large dose of pituitrin before the cervix is completely effaced, giving rise to sudden compression and rapid expansion, there is a great possibility that intracranial injury may be done.

In twilight sleep due to prolongation of the second stage of labor with frequent necessity of application of forceps, there is often an injury to the tentorium.

There are cases on record which were delivered by Cesarean section, where an injury had occurred, due either to pressure of the head against the rigid os or pelvic bones, or to delivery through an incision in the uterus of insufficient length.

In breech deliveries where the occiput is pressed hard against the symphysis, pushing the cerebellum up against the tentorium, tears may result.

Ventricular hemorrhages are not produced by asphyxiation but are due to heightening of vertical diameters with lateral compression, whereby the falx is pulled up and with it the sinus rectus and the vena cerebri magna is torn where it connects with the sinus, according to Beneke.

The predisposing causes of intracranial trauma are syphilis and other diseases of the mother, as acute infectious diseases, plumbism, alcoholism, arteriosclerosis, nephritis, etc.

A large percent of premature infants show injury to the cerebellum or brain which is now attributed to lack of develop-

ment, the brain substance being unduly soft and the vessels thin-walled.

When the moulded head is suddenly released as in a precipitate labor or quick forceps delivery, the abrupt change in the configuration of the skull may cause a hemorrhage, before equalization of circulation has had time to take place.

Asphyxiation is rather a result than a cause of hemorrhage. Due to pressure the hemorrhage has already taken place with a resulting asphyxiation. The congestion due to contractions could only be a small factor in causing a tear being possibly slightly influenced by the distended veins.

Under contributory causes we have the hemorrhagic diathesis and manipulations during resuscitation.

The normal coagulation time in infants is from three to five minutes, but in certain cases it is delayed to eleven or twelve minutes or longer and a valuable indication can be found in small or large petechial hemorrhages occurring in the skin, mucous membranes, etc.

Manipulation during resuscitation, as in the Schultze method, where the shoulders are grasped on either side and the head is held tight between the wrists or balls of the hand giving rise to marked pressure, may either produce or increase a tear in the tentorium.

When the head is held down as a method of resuscitation a marked enlargement of a hemorrhage from a small vessel may occur.

Definite information as to the frequency of intracranial birth injuries is not obtainable, but is at least a great deal more frequent than is suspected. Hemorrhage ranking first and, as to location, the tentorium.

SYMPTOMATOLOGY

As at present, and probably in the future the greater percent of all confinement cases will be handled by the general practitioner, so it is well that he be able to recognize intracranial birth injuries by their most prominent symptoms.

Intracranial hypertension is not manifested in the infant as in the adult due to anatomical differences being produced in the adult by the rigid skull bones whereby the intracranial content is increased, while in infants there is a decrease in the actual skull capacity due to compression. Delayed symptoms may also be due to expansion of the skull after birth made possible by the bulging of the fontanel and stretching of the sutures.

The possibility of a hemorrhage must be considered in every case of melena or hemorrhages from the mucous surfaces.

The classic symptom of increased intra-

cranial tension is the bulging of the large fontanel. This may take place in the presence of a marked hemispheric or ventricular hemorrhage or a cerebral edema. When the bulging takes place gradually it indicates a progressive bleeding.

As a rule new born infants with intracranial hemorrhage are very restless, crying incessantly. If hemorrhage is not excessive, they refuse to nurse due to absence of normal sucking reflex. The paleness of these infants is due to vasomotor irritation rather than actual loss of blood.

Respiration is not characteristic as in the adult, may be slow and deep, often interrupted by the cry. Cyanosis may be present when there are convulsions or when the hemorrhage is beneath the tentorium.

Convulsions, which may be tonic or clonic, are characteristic of the cortex type involving chiefly the flexors of the extremities, muscles of respiration, eyeballs, face and occasionally of the jaw. They vary in frequency and duration and may be brought on by manipulation or pressure applied to the bulging fontanel. A loud yelling cry during inspiration at the height of the spasm is followed by complete relaxation and normal breathing. Quite often an irritability or spasticity preceding convulsions may be observed.

Paralysis.—As the hypertension in the skull increases, due to further extravasation of blood, the spastic condition gradually yields to a paralytic state, death often supervening before this is reached. As one group of muscles become paralyzed, passing to another, quite often localization of the area of hemorrhage can be determined.

It is of great importance for appropriate treatment to determine as nearly as possible the location of the hemorrhage. The following will indicate its location to some extent as to whether it is supratentorial or subtentorial.

Supratentorial

1. Infant cries a great deal during first few days.

2. Respiratory center affected later; infant pale.

3. Death may be delayed.

4. Fontanel becomes tense within comparatively short time.

5. Prompt appearance of symptoms of intracranial hypertension.

6. Rigidity of neck and opisthotonos hardly noticed.

7. Symptoms from involvement of facial and oculomotor nerves, at first unilateral.

Subtentorial

1. Infant usually quiet, apparently sleeping or in a comatose state.

2. Respiratory center as a rule affected early; infant cyanotic, especially during convulsions.

3. Death occurs early.

4. Fontanel at birth normal; slight tension late.

5. Symptoms of hypertension appear late.

6. Rigidity of neck and opisthotonos usually marked.

7. Indications of involvement of facial and oculomotor nerves are immediately bilateral.

These symptoms are early and soon become mixed, when it is impossible to determine the location.

DIAGNOSIS

Asphyxiation should always suggest an intracranial lesion, especially if the child at birth is at first normal, and later shows respiratory disturbance. Suspicion should be aroused when the infant is crying incessantly or is strikingly quiet, and particularly when it does not respond with a sucking motion when the lips are irritated by the finger.

When a fetal tachycardia appears, without a preceding bradycardia in the course of a prolonged labor, a threatened intracranial hemorrhage should be suspected, and if a bradycardia has preceded, then the hemorrhage has probably already taken place.

Delayed coagulation time in an infant suspected of an injury is helpful in making a conclusion.

Marked external trauma, over-riding of bones, may indicate a hemorrhage. By the ophthalmoscope a venous congestion with an edema of the nerve head may be found—probably due to pressure on the central retinal vein. According to some authors such findings, along with spinal puncture, justify a decompression operation, even when convulsions are not present.

Spinal puncture is done for obtaining spinal fluid for examination and for relief of abnormal tension. Blood reaches the spinal fluid from infratentorial injury directly, and indirectly from supratentorial injuries. By making the puncture, usually located in the lumbar region, the intracranial pressure is relieved, convulsion stopped and a great aid in diagnosis is obtained.

By relieving pressure, however, in case of delayed coagulation time, the hemorrhage may be considerably prolonged, so this should be prevented by first determining the coagulation time, and if delayed, preceding puncture, by injecting of blood or serum.

PROGNOSIS

Immediate effects depend upon the location and extent of injury. Many of the smaller ones produce only transitory signs with complete recovery following. When convulsions have developed the outlook for life is decidedly bad, and if followed by paralysis, the end soon comes.

As regards the **prognosis** for health following trauma and asphyxia, certain physical and mental anomalies may manifest themselves later in life. **Little's disease**, cerebral spastic paralysis, is shown to be due to injury to the brain probably from intracranial birth trauma. But so far it has not been proven that mental deficiency is directly attributable to intracranial birth injuries.

Intracranial lesions occur when compression of the head is extreme, asymmetric and if accomplished quickly and particularly if hastened by oxytocics, manipulations, or instruments. The mere fact that labor is drawn out, so long as there are no abnormalities, has little effect in producing injury. Primiparity obviously is not in itself of much importance so long as no disproportions exist.

Delayed effects of intracranial birth injuries, as manifested by lack of mental development, epilepsy, palsies, etc., is still an undecided issue. There are certain definite spastic paralyzes, however, that are due to birth injuries.

It is asserted by Eherenfest that a great number of cases having definite symptoms of intracranial birth injuries, are overlooked due to the lack of careful examination of the infant at birth and close observation for the first few days following.

PROPHYLAXIS

Intracerebral birth injuries are, in the main, due to sudden or excessive compression of the head, and in the presence of certain predisposing factors as prematurity, asphyxiation, brusque manipulations during resuscitation, hemorrhagic diatheses, or even the trauma of a normal labor. There is a tendency to exaggerate the results of minor lesions.

The mortality rate in forceps deliveries, varies from 10 to 50% as quoted by various authors. The danger of high forceps is well known. Sachs, in a series of 90 cases where forceps were applied, solely in the interest of the child, showed 56 delivered in a normal and apparently unimpaired condition, the remaining 34 showing evidence of injury. In operations done in interest of the mother, mutilation should be considered more than at present. Quite often, instead of forceps when the head is low and the

mother exhausted, a small dose of pituitrin or an episiotomy may be done. Too often the forceps are applied to the transverse diameter of the pelvis, rather than to the transverse diameter of the fetal head, not having recognized the extent of rotation. Forceps should never be applied to overcome disproportion between the fetal head and pelvis, but when applied, traction should be made slowly and intermittently, allowing the head to mould gradually, and if possible to apply properly, the blades should not be held tightly enough to cause an uneven amount of compression.

In breech deliveries, the greater percent of fetal mortality is due to intracerebral and spinal injuries, the tentorial tears being greatest. The head should be kept flexed, occiput not pressed too hard against the pubic bone before the body is raised for delivery of the after coming head; should the pelvic floor present an obstruction, episiotomy may be done or forceps applied.

The high mortality rate in premature infants is due to the unusual vulnerability and lack of development. The induction of premature labor because of contracted pelvis of minor type is rather discouraged at the present time.

Protection of the perineum by delivery of the head between pains by pressure exerted on the forehead or with a finger in the rectum, may be sufficient to produce a tentorial injury. An episiotomy is better in such cases. To retard the head in precipitate labor, the palm of the hand should be placed directly against the exposed surface of the occiput.

All vigorous methods of resuscitation should be avoided. Schultze's method should never be taught without also teaching its dangers. When marked asphyxiation is present an intracranial injury should always be thought of in connection with it.

Twilight Sleep. It is conceded by practically all that it lengthens labor, necessitating often forceps application even after pituitrin is used, and produces asphyxia. As to mental and physical defects in later life, as a result, it is not yet established, but there is evidence that it is the cause of many intracranial injuries.

TREATMENT

The injection of whole blood or serum in amounts from 10 to 25 cc in the presence of intracranial hemorrhage, delayed or prolonged coagulation time or in cases showing symptoms of injury, is strongly advocated as a prophylactic procedure. The blood may be obtained from the father and in-

jections may be repeated every four to six hours, as indicated.

Spinal puncture in the newborn is not only difficult but has some danger attached. The good results from relieving the pressure, as well as a diagnostic procedure, is well worth considering, however. Brady reports as much as 60 cc of blood and spinal fluid removed at one time, and the total amount of 240 cc in four days in one case with complete recovery.

SYMPTOMATIC TREATMENT

As little manipulation of infant as possible. Keep in a warm room, avoiding all irritation such as a glaring light, breeze, noise, etc., apply ice bag to head, give bro-

mides and chloral for convulsions and spasticity. Feed through a catheter if unable to nurse.

OPERATIVE TREATMENT

Operations advised can be found in surgical references. Small incisions, small and large trephines, large osteoplastic flaps, are advocated by various authors. The surgical procedure, however, is usually postponed until after the case is hopeless, and of course the mortality is high. But with earlier recognition this should be definitely lowered and a great many more infants saved from intracranial trauma and their future health assured.

REPORT OF FIFTY CASES OF HAYFEVER TREATED WITH LOCAL POLLENS

GEO. TURNER, M. D.

EL PASO, TEXAS

(Read before the El Paso County Medical Society, January 19, 1925).

Hayfever is a form of protein sensitization. A protein sensitization in general is a reaction on the part of some individuals toward proteins with which we all come in contact. Just why a certain protein should be absolutely poisonous to one individual and beneficial to another, and why the same individual may go through years in contact with a certain class of proteins suffering no ill effects and suddenly discover that they are poisonous to him, is a matter for thought and investigation. The theory has been advanced that fair complected people of delicate circulatory structures are more apt to develop a protein sensitization. I think it is also true that people who eat a great deal of highly seasoned, rich protein foods, are more apt to develop a sensitization, not necessarily to foods but to any form of protein. Perhaps the diet is of significant importance in treating hay fever, though I have never observed a case that followed a selected diet. Protein sensitizations are closely related, whether caused by food, bacteria, epidermal or pollen. It is true that their manifestations are different but a person sensitive to one class of proteins is also likely to be sensitive to another class.

In this report, the term "hay fever" is understood to mean an inflammatory condition of the upper respiratory passages caused by pollen protein, and not by some other sort of protein such as epidermals, bacteria or food. The symptoms of hay fever, which I will not here enumerate, are sometimes caused by a sensitization to one or more of the other classes of protein,

though these proteins are usually the cause of some other manifestation of reaction. The pollen proteins cause hay fever, and sometimes asthma; bacterial infection is often superimposed on hay fever. Epidermals usually cause asthma but at times they also cause certain forms of dermatitis. Food proteins sometimes cause hay fever symptoms, but most often they are found to be the cause of urticaria, dermatitis, asthma or arthritis. A dermatitis of allergic cause, however, is more apt to be from some focus of bacterial infection than from a food. Bacterial sensitization is also an important cause of asthma.

Before stating the results obtained in fifty cases treated during the last season, I wish to say something of the rules followed. There are some general rules that apply to both seasonal and preseasonal phases of treatment. There are other features peculiar to the preseasonal treatment, and still others peculiar to the seasonal treatment. The general rules are: (1) Determine reaction by the skin test. (2) Determine degree of reaction with the solution test. (3) Give treatments daily. (4) Try never to get a reaction. (5) If reaction is obtained, drop back to a dosage that gave no reaction. (6) Combine in one antigen pollens from plants belonging to the same botanical group. (7) Give separate courses of treatment for each group of plants to which the patient is sensitive. (8) Do check test on completion of treatment. (9) Repeat treatment if necessary. (10) Use locally gathered pollen.

It is of great importance to keep the

dosage constantly just below the point of producing a reaction because a dose large enough to cause a significant reaction will increase sensitization rather than stimulate resistance. If the patient continues to get reactions and it is impossible to get him to tolerate any strength of antigen without reaction, it is useless to try to effect a desensitization. The violation of this principal of protein therapy is responsible for failure to being relief not only in hay fever cases but also in asthma cases of bacterial cause by the use of autogenous vaccine. In this condition results are obtained not so much by effecting an immunity to the infecting organism as by effecting a desensitization to the presence of the bacterial protein. Of course eradication of the infection by use of the vaccine is the end result to hope for and eventually a dosage of sufficient size to effect this can likely be reached but the usual dose and strength of vaccine given to eradicate the average chronic infection will bring on such a violent paroxysm of asthma that the patient will refuse to continue after two or three such treatments. The hay fever case will do the same thing and an excellent implement of therapy will go overboard.

If a reaction is obtained in the course of daily administration and the reaction is present when the patient presents himself for treatment, do not give him a dose that day but delay until the reaction is gone and administer a dose that gave no reaction. Drop back through at least three days treatment and repeat those doses and when the size dose is again reached that gave the reaction, he will, in all probability, be able to tolerate it. If it is at least found impossible to get the patient to tolerate a dilution as strong as 1:5000 without reaction, there isn't any use hoping for relief in the case if the treatment is being conducted coseasonally.

A case that reacts to the pollen of trees, weeds and grasses for example, requires three separate antigens and three separate courses of treatment. All the tree pollens may be combined or as many as the patient reacts to, but the trees and weeds or grasses can not be combined in one antigen. This is because a desensitization to grasses confers no desensitization to trees and if combined the tendency to react is so great a solution of sufficient concentration to effect desensitization would never be tolerated.

The features peculiar to the preseasonal treatment are as follows: (1) Skin reactions are not so marked as in the seasonal cases. (2) The beginning dilution of antigen is stronger and the course of treat-

ment is not so long. (3) The treatment should be begun long enough before the pollenating season to complete the course and repeat the treatment if necessary. (4) There is a higher per centage of successful desensitizations effected, and the patient is prevented from having the condition.

There are five different botanical groups of plants that cause hay fever in this locality and a patient who has had hay fever for several seasons and who is sensitive to all five of the groups should begin treatment in January in order to get the five courses completed before the hay fever season begins. A patient sensitive to cottonwood should begin treatment in January, because the cottonwood begins to pollenate about the middle of April. The grasses begin in May, and because these pollens are among the hardest proteins to effect a desensitization, treatment should be begun in January. The weeds are midsummer and late summer plants, consequently a patient sensitive only to weeds can begin treatment in March or April and get through before they begin pollenating.

The features peculiar to the coseasonal treatment are as follows: (1) Reactions are usually very marked. (2) The beginning dilutions of antigen are necessarily high and the treatment is longer than the preseasonal. (3) Reactions are more often encountered during the course of treatment. (4) Symptoms usually disappear when the patient can tolerate a 1:5000 dilution without reaction. (5) Symptoms sometimes reappear a few days after completion of the treatment, in which case repeat the last few dilutions and symptoms will again disappear.

Unfortunately, people who suffer from hay fever will not as a rule present themselves for treatment until the season is on and they are suffering from the condition. Preventive medicine is not yet sufficiently popular to cause these cases to do the thing that offers them their best hope of relief, consequently, the results of the fifty cases I have to report were all coseasonal treatments. Twenty-four of the fifty were completely relieved and remained so during the remainder of the season. Ten cases were relieved during the course of their treatment but developed the condition again before the season was over. Fourteen cases said they derived some benefit from the treatment but their symptoms were never relieved. Two cases were worse when the treatment was discontinued than when it was begun. The least number of doses given to any case that brought relief was

twenty-nine. The largest number given to any case to bring relief was one hundred and forty-four. The average number of doses given in successful cases was fifty.

It is necessary to have the absolute co-operation of the patient to get results.

There were other cases who began treatment but took only a few doses and quit or else who came so irregularly that they got no benefit. In this series, forty-

eight per cent were completely relieved and twenty per cent were kept free by supplementing their treatment at different times during the season.

Perhaps when more is learned about the extraction of the protein from the pollen and about its preservation after extraction, it will be possible to effect a greater number of successful desensitizations and with less trouble.

INTRACUTANEOUS TESTS

R. J. STROUD, M. D.

TEMPE, ARIZONA.

(Clinical Demonstration, held at the Deaconess Hospital, at the Meeting of the Medical & Surgical Association of the Southwest, at their Tenth Annual Meeting, in Phoenix, Arizona, November 6 to 8, 1925)

Schick Test. This test, like the Dick test and the new technic of tuberculin test, is an intracutaneous or intradermal test having for its true interpretation a characteristic skin reaction without any noticeable systemic reaction. One of the reasons of the test is the fact that reactions occur in the giving of toxin-antitoxin for the prevention of diphtheria and in the immune serum given for scarlet fever.

Any test that has a delicacy of technic and that may be subject to misinterpretation should be given with these two factors in mind, else the reading of negatives would give a false sense of security. It is far better to give the immune serums than bungle either technic or interpretation. Even weak positives mean that not sufficient antibodies are carried in the individual's system to take care of ordinary virulent exposures to the disease in question. However, the expense and time lost in giving all persons immune serums or antitoxins would be prohibitive even if some heavy reactions are not considered. With any foreign proteid introduced into the system more or less of a reaction takes place, and even death has followed the giving of antitoxins, especially in those very sensitive cases, the so called "Status Lymphaticus." This is not due to the antitoxic product but to the proteid of the serum itself, and the danger has been greatly lessened lately by the extraction of all proteids not carrying immune bodies, and the giving of the active carrying parts, the globulins. As I have pointed out no systemic reaction follows the skin test, and even the reddened arm does not feel hot to the touch nor is it sore or tender. Therefore, the test should be given to see if antitoxin is needed in exposed cases or the toxin-antitoxin to give immunity.

Several things should always be taken

into consideration when any testing serums are given. It is always unwise to test any case which has fever from some other cause. Infants less than two years old may be negative and afterwards become positive, so it is very necessary to instruct parents in this fact for no false sense of security should be given in a disease of such magnitude as diphtheria. The test, while not coming to its height until the third or fourth day, is sensitive enough to give an interpretation within 24 hours or soon enough to administer antitoxin if it should prove positive, especially if the control serum should rule out pseudoreactions. There have been cases of diphtheria reported in Schick negative patients, but one always suspects either the care of technic or false interpretation of reactions. I will warn also against the use of old diluted mixtures. After you have mixed up the dilution as the commercial preparations now put it up, it ought to be used within a few hours, else some negative reactions may ensue. I have been convinced of this fact from observation of percentages of positives in the same group with very freshly mixed test material and older dilutions. If this or any test is of any value, the value only lies in the correct technic and the bearing in mind of every fact that may lead to false interpretation.

It has been estimated that a content of natural antitoxin as low as 0.01 units per c. c. of blood is sufficient to protect an individual after exposure. Larger amounts surely do so. Natural antitoxin can come from immunity in a breast fed infant, small amounts of diphtheritic secretions reaching the throat of an individual in which antitoxin is produced in great enough quantities to protect before an attack begins, and those individuals who are carriers and who have usually a very high immunity.

The test is based on the fact that an individual who has a quantity of antitoxin equal to 0.31 c. c. will neutralize an exact quantity of toxin when this is introduced into the system. Individuals having a larger content would of course neutralize more. Therefore, in giving the test, an exact quantity of the testing solution should be used. Most commercial houses now put up the toxin in containers which insures exact dilutions and which keeps the toxin potent for the longest time, until the time limit set on the label. Nearly all of these preparations are graded, so that 0.2 c. c. of the test solution contains exactly that amount of toxin that can be neutralized by an immune individual. This represents one-fiftieth of a guinea pig lethal dose.

Technic. A finely graded hypodermic syringe, preferably a tuberculin two-colored type is used and a small caliber, short needle fitted so that no leak occurs. The skin of an arm is cleansed with alcohol, and the needle inserted so that it enters the skin, goes through the skin and points outwards again so that the tip of the needle is eye upward and nearly comes out of the opposite side from the puncture. The plunger is then driven home, and if properly placed admits of no leakage back through the needle opening. The injection should show a good sized white wheal on the skin with indentations of the hair follicles, the same as in any intracutaneous injection. Those experienced in local anaesthesia will readily appreciate when this intradermal condition is present. The opposite arm can be used for controls. Heating the mixture makes good control solution, and is not wasted as we do not get large numbers for testing as a rule.

Interpretation. Pseudoreactions occur which show just a slight redness in 24 hours, and fade out at 48 hours. The control rules these out.

Positive reaction occurs when the skin becomes reddened in 24 hours, with a red wheal from 2 to 3 mm. in circumference, and often much larger. This increases in size, reaching its maximum in 48 hours. The third day it is no larger but is redder, turkey red, and on the third or fourth day some part of the wheal has a smaller nucleus of pigment. This varies from a yellowish to a brown. This establishes the positive. After a few more days the pigmented part scales slightly. The height of the test is seen in about one week. The fading out of the reddened area goes through a brownish pigmentation and scales very slightly.

Late reactions, and also slight positives

may come from too small a quantity of toxin used, due to leaking out or the class of syringe used, and can be caused by old mixtures. Pseudoreactions besides being weak as above mentioned may come on earlier than the true reaction, and be much larger in size. They do not scale and the pigmentation is absent or less marked than a positive. Positive reactions have abrupt edges. Unless you are sure of interpretations use control tests.

Dick Test. All that has been presented about the technic of the Schick test will apply to the Dick test for scarlet fever. The test is made in exactly the same manner, care being used in leakage from the syringe or wound. The amount used however for injection, is 0.1 cc of the Dick scarlet fever toxin. It is used by the Dicks on the forearm.

Interpretation. The material now used for this test gives very few pseudoreactions. Negative reactions show in 24 hours either just the needle prick or a very faint pink line. Slightly positive reactions show a pink wheal about 2 mm. in diameter without tenderness or skin swelling. Positive reactions show a red wheal from 1.5 to 3. mm. in diameter with abrupt edges, with slight swelling and tenderness. The red wheal is a very bright red. Strong positive reactions show a very fiery red wheal over 3 mm. in diameter with swelling of the skin and tenderness. The size of the wheal may reach 8 mm. in diameter. The weaker the positive the quicker it subsides. The stronger the reaction the more persistent it is.

The test, when positive, begins with an erythematous wheal in from four to six hours which reaches its height in 16 to 24 hours, when it begins to fade. Very strong positives do not begin to fade for 36 hours, but fading is always accomplished in 48 hours. After this the patch turns a slight yellow and may or may not desquamate.

Tests indicate that immunity persists in those individuals who have had scarlet fever. Of those who have not had scarlet fever approximately 40% show the reaction in some form of positive. This is true in all series. A positive reaction after scarlet fever has been diagnosed some time before may check the diagnosis. Those individuals who respond to the Schick test nearly always respond to the Dick unless they have had scarlet fever. This may explain why some scarlet fever cases improve rapidly after diphtheritic antitoxin. Another explanation may be that horse serum alone has immune bodies to scarlet fever.

Immunity to diphtheria is of a different

kind, and the positives vary with age. In the newly born and up to two years only about 40% are positive to the Schick test. Between the ages of 5 and 8 60% show positive reactions. From then up to the age of 60 the positives drop to 12%. Care therefore must be taken when small children are tested for some become positive again. In rural districts the number of positives is increased. Various observers show different percentages, which is in contrast with the 40% of positive Dick tests for all ages of non scarlet fever patients. Some go as high as 80%, others as low as 20% in children.

Children positive to the Schick test should be given the toxin-antitoxin for protection. One 3Lplus dose shows 50% negative Schicks in prepositives. Two 3Lplus doses raise the negatives to 70% and the

three doses to 80%. Seeing only 80% have immunity conferred after the first year, another Schick test should be given at that time to catch up with the positives. Severe reactions follow many doses of 3Lplus doses, especially in sensitive individuals, and in first doses. The reaction varies from slight discomfort and redness, to fever to 103, malaise, joint pains, head aches, and the serum rash. Many cases show a large "positive" Schick arm with a circumscribed area of redness and tenderness 3 or 4 inches in diameter. Should a big reaction occur the second dose should be withheld until the reaction is over. If an intercurrent fever should intervene the best procedure is to wait until convalescence is over and give three doses at that time. If, for any other reason, the dose should be interrupted, it is always better to give all three again.

CARDIAC INFARCT

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(Read before the Tenth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924.)

Cardiac infarct is considered rare only because the diagnosis is so often missed. In a little over one hundred autopsies seen in El Paso during the last year and a half, there were seven cases of cardiac infarct, fibrous myocarditis or cardiac aneurism. If the heart could have been examined in every case of sudden death from so-called acute "heart failure," "ptomaine poisoning," "acute indigestion," or "stroke" I am sure the percentage would have been much greater.

Cardiac infarct does not differ from infarct in other parts of the body except as modified by difference in tissue structure and function. Cardiac infarct caused by embolism is a very rare event. Sclerosis with atheromatous degeneration and calcification is found in practically every case. The same causes are at work as in arteriosclerosis in other organs of the body. Just why a clot will form in one calcified artery and not in another equally damaged we do not know. Ophuls¹, after 590 post mortems on cases of arteriosclerosis, concludes that infections, especially rheumatic, are the main cause. Age per se is not the main factor. Syphilis is not an important cause of sclerosed coronaries. In 86 cases of coronary sclerosis proved by autopsy at the Mayo Clinic² there were only eight cases of syphilis of the aorta. Neither is high blood pressure a proved cause. Arteriosclerosis

occurs in direct proportion to the number and severity of infections. When there had been no preceding severe infections Ophuls¹ found no case under 40 years; while in those who had had many infections it was frequently found after the age of 25, McCallum³ sums up the causes as infections, intoxication and an unbalanced diet. These observations are important when it comes to prevention and treatment.

Gradual occlusion of the coronaries may occur without symptoms. Such a case is reported by Gross⁴ in a woman of 74 dying of cancer without cardiac symptoms. The heart muscle was normal and the collateral circulation efficient, although the right coronary was occluded (Fig. 1). Allbutt⁵ relates a case where "not only were the coronary arteries calcified, but their orifices were so utterly obliterated that the very seat of them was indefinable; yet in this heart, so far as the microscope could tell us, the myocardium was normal." Pratt⁶ has demonstrated that in such cases the direct communication of the coronaries with the ventricles through the Thebesian orifices forms "efficient channels in the nutrition of the heart."

It is plain, therefore, that symptoms are present only when thrombosis causes sudden occlusion of the coronary arteries. Gradual occlusion is compensated for by gradual widening of the collateral circula-

tion. The signs and symptoms will be brought out in the report of cases.

Case 1. Very extensive calcification of both coronaries. Thrombosis. Instant death. Mrs. Sch. age 84 yrs. First seen September 17, 1924, on account of stupor coming on that evening. She had



Fig. 1. Roentgenogram of an excised heart, showing the results of a marked and almost complete arteriosclerotic obliteration of the coronary arteries. *Gray*

always been well until three months ago when she had dropsy and nocturnal dyspnea. Her physician ordered digitalis and she got relief. At the time of my visit the pulse was 80 and absolutely irregular. Blood pressure 210 systolic, 120 diastolic. There were rales at the bases of both lungs. She slept well and felt better next morning. After breakfast she had a little headache and slight pain under the sternum going into the neck. She lay down and the attendant left the room for a moment. When she returned Mrs. Sch. was dead. She had not changed her position at all. I suspected coronary occlusion. At post mortem six hours later both coronaries were found very extensively calcified (Fig. 2), and at a marked narrowing in the right circumflex, 2.5 cm. from its origin, was a clot filling the vessel. Dr. W. W. Waite, pathologist, reported he thought the clot had formed ante mortem. Sections showed diffuse fibrous myocarditis, some endarteritis obliterans, and some round celled infiltration.

Instant death means sudden circulatory standstill. There can be no other cause. Abdominal or cerebral accidents cannot snuff life out instantly, for the circulation will still go on for a little while at least. Of course there are other causes of sudden cardiac arrest besides infarct.

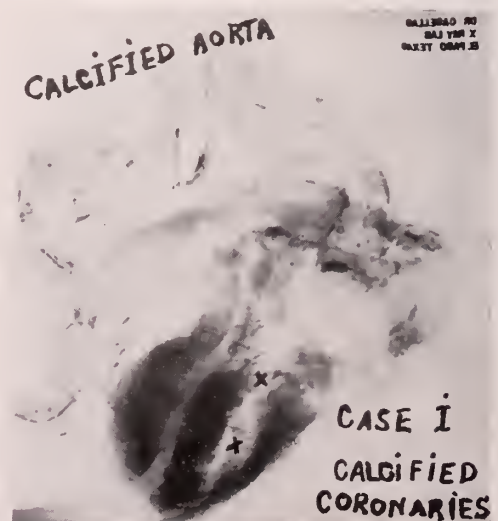
Case 2. Angina pectoris followed by rupture of the heart three months later. Dr. D., American, aged 57 yrs. Was seen by Dr. Calnan in Nov. 1923, while in great agony with dyspnea and pain that went from the stomach up the middle of the chest and down the left arm. His face was pale and his body covered with cold sweat. He said he had gas on his stomach which he could not get up. The pain continued for 24 hrs in spite of full doses of morphine. He was not entirely comfortable until the end of two weeks. He gradually got stronger and resumed his practice. On the

morning of February 19, 1924, he arose early, went to breakfast across the street, and on his return bought a cigar at the drug store down stairs and walked up to his office. Almost immediately he was struck with a pain about the heart, with cyanosis, struggling for breath, collapse and death before a physician could reach him.

At autopsy the heart was found ruptured at the site of an old scar, (Fig. 3) and there were signs of a recent infarct. No doubt his first attack of "angina" was due to coronary infarct. Dr. W. W. Waite reported: "Sections from the heart wall in the region of the rupture showed a large amount of fibrous tissue and organized blood clot into which had grown some blood vessels. There was some round celled infiltration."

Cardiac infarct is by no means always immediately fatal. Gordinier⁷ reports 13 cases of coronary occlusion with six recoveries. In 60 autopsies on coroner's inquest cases Le Count⁸ found 26 cases of acute coronary infarct and 34 of fibrous myocarditis, the latter probably due to healed infarct. Davenport⁹ reports a case where the left ventricle was ruptured by a large nail in an attempt at suicide. The pericardium was opened and the interventricular branch of the left coronary ligated to stop the bleeding. The man made a perfect recovery, probably because the heart muscle was normal.

Case 3. Cardiac infarct with death from rupture of the heart. D. S. age 59, retired army sergeant, always healthy until gassed in France in 1918, since which he has had considerable cough and some shortness of breath. The past two years he has had several "attacks of distress with gas in the left side of the abdomen" lasting two or three days, the last one occurring in January, 1924. First seen by Dr. E. W. Rheinheimer March 14, 1924. Had been working in the garden all morn-



ing and felt well. After a heavy meal he returned to work and while stooping over he felt a sudden sharp pain in the stomach and fell over unconscious. Finally he got into the house with considerable difficulty. There was numbness in the left shoulder and intense pain in the epigastrium so severe that he could not remain quiet. He was

belching large amounts of gas and thought if he could vomit he would feel relieved.

The patient was well developed and nourished. His face had an anxious expression, lips slightly cyanotic, and he was perspiring freely. He could not lie down on account of the pain and some distress in breathing.

CASE II

Site of
occlusion of
coronary

LEFT VENTRICLE
SITE OF
RUPTURE

The lungs were normal. Heart dullness increased to the left. Heart sounds extremely weak, the first sound barely audible. Pulse weak, 120 per minute, and felt like the pulse in shock. Blood pressure 140/80. The abdomen was distended but no mass or abnormality made out. He was put to bed and a warm water enema given which returned with a large amount of gas, giving some relief. Morphine gr. $\frac{1}{2}$ given by hypo, and after half an hour he was feeling fairly comfortable. At 7 p. m. the same pain had returned as bad as ever, radiating to the left shoulder. He had not remained in bed as instructed. Pulse very weak, 136 per minute. Heart sounds could not be heard. Blood pressure 110/72. Morphine gr. $\frac{1}{2}$ again given. Condition remained about the same the next day until 3 p. m. when the pain again grew worse. The pulse was 115. Heart sounds could not be heard. Blood pressure 86/67. Given morphine and sent to William Beaumont Hospital. At this time he was semi-stuporous but answered questions intelligently. His breathing was deep, with prolonged expiration suggesting uremia or diabetic coma. Blood pressure 76/62. He vomited a light brown liquid at intervals. On the morning of the 16th he was still comatose, with edema of the lungs and cyanosis. Highest temperature 99.4. Pulse from 112 to 130. Blood pressure 90/68. Strophanthin given intravenously with no improvement. Normal urine except a trace of albumen. Blood urea nitrogen 44 mg. per 100 cc. Creatinin 2 mg. per 100 cc. Blood sugar 1.65 mg. per 100 cc. Total non protein nitrogen 71 mg. per 100 cc. Leucocytes 19 000. 84% polys. Died at 3:55 a. m. March 17.

Post mortem report of Major F. E. Gessner: The coronary artery thickened and constricted and contains organized blood clot. Infiltration of blood in tissue around the artery is partly organized. At the point of rupture (Fig. 4) the cytoplasm stains very poorly, the muscle fibers are very indistinct, and striations are absent. At the margin there is marked inflammatory reaction with infiltration of the muscle with endothelial cells and polymorphonuclear leucocytes, with coagulation necrosis.

This case is reported through the courtesy of Dr. E. W. Rheinheimer and the Medical Officers at William Beaumont Hospital.

Case 4. Cardiac infarct. Phlebitis. Prolonged

recovery. R. R., American, age 49. Insurance man, always well except for a prolonged attack of malaria in Cuba during the Spanish-American war. A man of good habits, doing gymnasium work and on the point of taking out \$10,000 life insurance. Jan. 23, 1924, just after lunch he was seized with a violent pain in the region of the upper sternum, which went into both arms, worst on the right. Dr. Hugh Crouse saw him within 30 minutes and Dr. W. W. Waite arrived soon after. He had the facial expression of great agony, was fighting for breath, and when his chest was being examined he would cry "For God's sake, stop!" because of the aggravation of the pain, especially in the region of the fourth rib. The pulse was 72 and regular. Temperature 98.6. He was given $\frac{1}{2}$ gr. morphine without relief, and finally chloroform. An emetic of apomorphine was administered, followed by copious vomitus. That evening he vomited blood. The pulse was 110 and slightly irregular. The pain continued and morphine was constantly necessary. I saw him with Dr. Crouse on the evening of the 24th. He was still in great pain, and very restless, constantly changing his position in bed. He complained of dyspnea though he preferred to lie flat. Respirations 24 per minute. Temperature 99 to 100.8. Blood pressure 114/72. When he was well it was 130. Leucocytes 20 000, polys 87%. Hgb. 75%. The heart sounds were faint at the apex but well heard at the base. The apex impulse could not be seen or felt. The heart was slightly enlarged, the apex being 2.5 cm. beyond the nipple line. The abdomen was soft, liver and spleen not palpable. At the base of the right lung crepitant rales were heard over a large area. The next morning a loud to and fro friction sound was heard over the heart. This disappeared in 12 hrs. The subsequent course will be related briefly. Jan. 26th, there were 23 000 leucocytes, 85% polys. Feb. 2nd there were 10 000, with 76% polys. Urine always normal. Blood pressure 102/60. Feb. 3, it was 96/50. Temperature ranged from 99.8 to 102. The pulse remained slow and regular except for a few flurries of tachycardia and premature beats. Polygraphic tracings showed nothing abnormal. Conduction time one-fifth second. Feb. 21st he had pain about his heart. Two days later there was a loud pulmonic friction rub just outside the apex; this was probably due to a small pulmonary em-

base
III

X SITE OF
RUPTURE IN LEFT X
VENTRICLE

bolism. Feb. 27th he developed phlebitis in the left leg, which gradually subsided. April 16, the blood pressure was 122/80. He had been getting about the house for some days and was now able to walk a block or two. At the present time, Oct. 16, he is in California and is steadily gaining strength and getting about very well.

What was the origin of the gastric hem-

orrhage? At the best bleeding from the stomach is often obscure. Repeated tests for occult blood, after the acute stage, were always negative. There was no pain in the stomach and the belly was always soft.

Case 5. Cardiac infarct. Ascites. Double pleural effusion. Recovery. F. C., Mexican, gardner, age 51. Had always been well except for a little shortness of breath and aching in the chest on going up hill. One Sunday morning in August, 1923, he worked as usual, and played with the children in the afternoon. At 1 a. m. that night he awoke with a pain in the middle of his chest high up and about the clavicles. He was struggling for breath. He said it "felt as if a railroad spike were being driven into his body." He had "gas on his stomach" which he could not get up. Dr. H. Schught saw him and gave him morphine which gave him some relief. The doctor said he had angina pectoris and that he would die. It was 48 hours before he was free from pain. The dyspnea persisted. Some days later he became dropsical, with swollen legs and scrotum, the belly full of fluid and the liver swollen. A large amount of clear fluid was withdrawn from both sides of his chest on three occasions. He was told by different physicians that he had asthma, tuberculosis, myocarditis and angina pectoris. There were good reasons for all these opinions except tuberculosis. I saw him first October 1st, six weeks after the onset. At this time his chief complaint was dyspnea. He was propped up straight and breathing 40 times per minute. The feet were swollen and ascites was present. The pleural effusion had disappeared. The lungs were clear except for a few rales at the bases. The abdomen was soft, the liver not palpable. The heart was slightly enlarged, the sounds clear, no murmurs. The blood pressure at first was 130/100. Later it was 120/80. The pulse ranged from 80 to 96. There was slight fever at times. He was very weak. X-ray showed the diaphragm adherent on both sides. Wassermann negative. Urine normal. Sputum negative for T. B. Polygraphic tracing was normal with normal conduction time. At the present time he is still unable to work and has arthritis.

The heart must have suffered some sudden calamity in this case. I can think of nothing but cardiac infarct that would cause such a transformation over night. Angina pectoris shows less prolonged pain. Allbutt⁵ says that "the pain of angina pectoris is generally paroxysmal, rarely a steady grind; continuous thoracic pain, however urgent, if of vascular origin at all, signifies some accident with the heart itself, such as rupture, or an acute coronary thrombosis." In angina there is usually no dyspnea. Wearn¹⁰ says that sudden dyspnea, without other explanation, points strongly to cardiac infarct. Attacks of angina have no such sequellae as occurred in this case. The prostration was too sudden for pericarditis.

I have seen seven other cases quite as typical as these reported, but for lack of space will not report in detail. Four died from a few days to two weeks after the onset, and three are still living. Two are

working and in good condition, the third is in fair health after two years.

The clinical picture of cardiac infarct, with its diagnostic signs, we owe to many investigators, among whom should be especially mentioned Herrick¹¹, Gorham,¹² Pardee¹³, Riesman¹⁴, Levine¹⁵, and Wearn.¹⁰

The symptoms of cardiac infarct are just what we might expect. They are:

1. Those due to the local lesion in the heart.

From the infarct with its congestion, edema, damaged muscle, necrosis, infiltration of polymorphonuclear leucocytes and pericardial plastic exudate, we have (a) fever, (b) leucocytosis with high poly count, (c) pain, and (d) pericardial rub.

2. Those due to heart failure.

The sudden crippling of the heart gives rise to (a) pulmonary edema and congestion, sometimes hemoptysis, (b) dyspnea, (c) vomiting, sometimes gastric hemorrhage, (d) swollen liver, (e) cyanosis, (f) dilatation of the heart, (g) feeble or absent heart sounds, (h) fall in blood pressure, (i) restlessness, (j) vasomotor signs such as flushing and paling, (k) finally, if the lesion is bad enough, shock, collapse and death.

If one will remember these facts, diagnosis will not be difficult. The surgical mind may confuse it with acute pancreatitis, ruptured duodenal ulcer or gall bladder. Levine and Trantor¹⁶ report two such cases, with post mortems showing cardiac infarct. Haller¹⁷ reports two cases operated on for acute pancreatitis in which no abdominal lesion was found, but at autopsy cardiac infarct was found in both cases. The opposite mistake may also be made. The pain of gastric ulcer may radiate up over the heart and into the left arm (Hardt¹⁸).

Prognosis and Treatment. The frequency of fibrous myocarditis and cardiac aneurism demonstrate that some cases of infarct recover for a time at least. The degree of recovery will depend upon the state of health of the cardiac muscle at the time of the attack, and the efficiency of the collateral circulation. The thrombosed vessel may partially open up by canalization.

As to treatment, just as elsewhere, the first thing is a proper diagnosis. Realizing the pathology, no one will question the need of early, prolonged and **absolute rest**. After tying the femoral artery in a dog it takes three months for the collateral circulation to be well established. (Buerger¹⁹) In Davenport's case²⁰ of ligation of the coronary artery the T wave was still inverted

in all three leads at the end of 59 days. Finally, 257 days after the operation, the electrocardiogram was normal. Naturally an extensive cardiac infarct cannot heal in a few days or even a few weeks. Many a tragedy occurs because this fact is disregarded. At least a month or more in bed is none too long, and should be followed by two more months of rest, or even longer, depending on the persistence of the symptoms.

Can drugs be of service? There is every reason to think so. Nitroglycerine dilates the coronaries, (Smith²⁰). I give 1/100 gr. every three hours and keep it up for a long time. Sodium citrate has been used successfully in beginning gangrene of thromboangitis obliterans. Riesman has recommended it in cardiac infarct. I give it in large doses by the mouth. Intravenously it may be given daily, 12 to 20 cc of a 30% solution at each injection.

Foci of infection should be sought and removed when possible.

The diet should be light. Citrus fruits and fresh greens are valuable. Keep the bowels open and never overload the stomach. These people are apt to "dig their graves with their teeth." Whether fat or lean they generally eat unwisely and too much.

Finally, when the heart has healed, careful exercise will help to improve the collateral circulation and the heart muscle.

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DISCUSSION

DR. ORVILLE HARRY BROWN, Phoenix, Ariz. (opening): Dr. Werley was good enough to send me, a few days ago, a copy of his paper. I read it and was thoroughly convinced that, while I might know cardiac infarct from the standpoint of pathology, I knew nothing of it from the aspect of clinical medicine.

I have in my library three systems of medicine and twelve to fifteen text books on the practice of medicine and I turned to them to know what other clinicians knew of cardiac infarct. Only one author dignified the subject of cardiac infarct by placing it in his index, and he, the famous French clinician, Dieulafoy, devotes one short page to cardiac infarct. He recognizes that thrombosis of the heart occurs and that the patient may recover and live for years. Dieulafoy does not, however, tell us how to diagnose cardiac infarct in our patients as does Werley. In other words, Dieulafoy treats cardiac infarct from the standpoint of pathology rather than from that of clinical medicine.

James MacKenzie, in his splendid book "Diseases of the Heart," details a number of cases of instant death and he speaks of aneurism of the heart, and yet, if I mistake not, not once does he speak of cardiac infarct,—not in a clinical way, anyway. So if any of you, before hearing Werley's paper, felt as ignorant as did I on the subject of cardiac infarct from a clinical standpoint, I say to you take consolation in the fact that there are others who are still ignorant.

It seems to me that Dr. Werley has written a chapter of new medicine; and we can hardly overestimate the importance of this.

I recall sitting some years ago at a round-table discussion, and sitting across from me was a man perhaps 65 years of age, apoplectic in build, heavy, thick-necked, flushed face; he had just made some remarks on the subject under discussion, and my eyes were on him. When the next speaker took up the discussion, my eyes still rested on the man described above, and I saw come over his face suddenly an expression of pain and anguish, and almost before I could reach him, his face was flushed red, then purple, and then blue, and before I and another physician could get to him he was dead. We reached him and made an examination at once; but there was no pulse and no heart beat that we could determine. I had never been able to explain what had happened. It was plain that the blood was going from the arterial system into the venous system, but was not going through the heart back to the arteries,—but why? This had never been explained for me until I read this paper. I am sure most of you have also wondered about these sudden stoppages of the heart.

I wish to emphasize the point of treatment in these cases. It seems very likely that many of them may escape detection,—these cases of infarcts. Whether this be true or not, it is up to us to recognize the margin of safety of any diseased heart. I believe I have not seen this in the literature, but it must be more or less general knowledge that we have a comparatively simple method of measuring the margin of safety of the heart, and yet some doctor from Battle Creek last year gave us a discussion on this very subject, and did not mention this method, and so it may be new and original with me,—I refer to the size of the heart. The heart is like a toy balloon. When it has too much stress and strain it di-

lates. On rest the normal heart returns to its proper size; but the weakened heart is apt not to return to normal size and certainly not with the same degree of rapidity as will the normal heart; and there is the measure for the margin of safety. How much work does it take to cause the heart to dilate, and how much rest to make it return to normal size?

If it does not return to normal size it is doing more work than normal with less nourishment than normal. When the heart stretches, the coronary arteries are stretched. Stretching an elastic tube decreases the diameter of the tube, and it doesn't take much stretching of the tube to reduce greatly its diameter. And so with the coronary arteries; the stretched arteries of a heart even moderately dilated may carry only half the amount of blood to nourish these walls. This heart needs rest and digitalis. It matters not whether the heart muscle has decreased nourishment from sclerosed coronaries, thrombosis, infarct, toxemia, or simple stretching of the coronaries from cardiac dilatation.

I wish to thank Dr. Werley for bringing this paper to our attention. It seems to me that it is an ideal paper, as it brings us something new and practical, and something that makes us think.

DR. W. W. WAITE, El Paso: I have been wondering why it is that a subject of so much importance as this should have been so long neglected. The trouble is that we have little opportunity for examination. These people are well today and die tomorrow, and they usually die outside of the hospitals, and usually with very few post mortems; the death certificate is usually signed as indigestion or something of that sort, which means nothing, and we know nothing about what has taken place. In making an effort to get material of this kind we have an organization called the "Clinical Pathology Club" and we do the post mortems. Some people say these cases do us no good because they have no history, but we will never know what happened to them unless we examine them; in that way we can collect a few specimens. At the same time there are a number of other cases which have been treated and which, if we could have examined these others, we would have had a large number. But they do not get to hospitals, and there are no post mortems, and we therefore do not have at hand the information that would have enabled us to correctly diagnose these conditions. You must bear in mind that we have what is called an acute condition and a chronic condition. A man is taken with a violent pain and he may die in an hour, or a day or two, or may get well. There is an acute infarct that goes on like an acute infarct in any other part of the body. And then we have sclerosis, which may begin at the age of ten, so age doesn't always count in that. But in this chronic form we have this same process going on which may involve one center one time and another at another time; sometimes much fibrosis may be present, and at other times lesser amounts. But both of these may be looked upon as disease of the coronary arteries, and these chronic cases usually die suddenly, without pain, or if they have pain it is so brief that no one recognizes it. The case of Roosevelt may be classed as such a case, and in looking back over our records we probably all know of people dying like that. These are chronic arterial disease, where the results are the same; they all have this diffuse process which takes place. Bear this in mind in dealing with this class of cases.

I am sure this paper of Dr. Werley is a valuable one, and is something that we can all understand.

DR. F. D. GARRETT, (El Paso): I appreciate this paper very much. I think it has done much to cover the study of fatal diseases of the heart, and also diseases that are not fatal,—because there must be many of these cases he speaks of which have only slight or moderate symptoms.

It seems to me there must be difficulty in making differentiation between cardiac infarct and angina pectoris. In angina pectoris we are supposed to have interference with the circulation of the primary arteries; in cardiac infarct, as I understand it, they have hemorrhage of the heart muscles. Both anemia and hemorrhage in the heart muscles can cause the same symptoms. I think that differential diagnosis is very important, and I would like to have Dr. Werley tell us how to distinguish these conditions.

DR. G. WERLEY, El Paso, (closing): I claim no originality whatever for this paper. Nearly every idea in it I found in literature which I have been working on for a couple of years. I have been watching everything pretty carefully. Literature on this subject, as Dr. Brown says, is very scant. I have only found three or four good articles, but there have been some good investigations, and my idea was to get it out to the men who need it, because these journals of medicine hardly ever reach the general practitioner.

Dr. Brown brought out an interesting point about dilatation of the heart. The heart under stress dilates to a certain extent, and it doesn't hurt it any; it works better that way. If it dilates until it is stretched much, however, it is working to great disadvantage on account of the lessened blood supply.

I will say nothing about Dr. Waite's discussion as he has said it better than I could.

In regard to Dr. Garrett's question as to differential diagnosis, the main thing is to learn how to diagnose an infarct case. Angina pectoris is nebulous; we don't know exactly what it is, but there are a great many things put under that head that I am very sure should not be there. As we come to know more we will realize that there are things classed as angina pectoris which are not angina pectoris at all, and they will be put under their proper head. I think one trouble is we have not had enough post mortems. In the two volumes I have read of Albutt, one can not help but be struck by the scant post mortems; I do not think in those two volumes there were over a dozen cases. A thousand post mortems, I think, of people dying suddenly would do a tremendous amount toward clearing up the question of what angina pectoris really is. My own opinion is that it is due to infection of the coronary arteries in every case. It has been said by some authorities that in angina pectoris the arteries will block up and then they die; the idea is that it is the coronary arteries themselves that cause the angina pectoris. There are many theories to explain it, however, in fact there are some eighty theories given. I might just repeat here the main points to observe,—first the prolonged pain that doesn't stop for 10, 12, 48 hours, without a moment's cessation, and high up in the chest, under the breast bone; second, the fall of blood pressure is exceedingly characteristic; a pressure of 210 will run right down to 120; that is a symptom; third, polymorphonuclear leucocytosis, and fourth, dyspnea,—these four are the main points; when you get two or three of them together, or even one of them, you can make a safe diagnosis. No one can make diagnosis in 100% of the cases; we don't diagnose typhoid 100%, so of course you can't tell in every case, but if you will remember these points, and what has been said here this afternoon, I think you will be able to pick up quite a few of these cases.

EMPHYSEMA AND TUBERCULOSIS *¹

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*¹ Read before the Grant County Medical Society, New Mexico, February 27, 1925.

Fishberg¹ voices the popular belief when he states that "persons with atrophic emphysema rarely become tuberculous—and it is among persons of advanced age that we actually find the two diseases combined."

However, we observed in our rather small series of autopsies, two cases of chronic vesicular emphysema complicated by tuberculosis in comparatively young individuals presenting also other features of interest, which we want to report in the following.

Both cases in their later course have been under the service of Dr. J. Zarit and the clinical features are drawn from his case histories.

Case No. 1. S. B. a 26 year old, white salesman, admitted to the Sanatorium on April 20, 1923, stated that he did not know of anyone in his family having been sick with tuberculosis and he did not remember having had the usual childhood diseases. He had typhoid in 1911 and epidemic influenza in 1917 and 1919. His tonsils were removed in January, 1922, and his adenoids in June, 1922. According to his statement his present illness started in March, 1922, with cough, expectoration and with sharp pains in his abdomen and in the right side of his chest. He had no fever and no hemoptysis. He was told he had tuberculosis and entered one of the sanatoria in Denver. He was classified there as a far advanced active case of pulmonary tuberculosis. His sputum contained tubercle bacilli. After six months he left the institution improved and went to work. A few months later his condition became worse and he was admitted to our Sanatorium.

His physical examination revealed on admission the usual signs of far advanced active pulmonary tuberculosis. The x-ray examination showed disseminated miliary tuberculosis of both lungs and small cavitations in both apices. The sputum contained acid fast bacilli.

His clinical course in the Sanatorium was, at the beginning, the usual one of a progressive far advanced active case. Commencing in the middle of October, the patient had several dyspneic attacks. After such an attack on November 26th, the physical examination revealed the signs of a pneumothorax of the left side. This diagnosis was confirmed by the roentgenological examination. A permanent rubber catheter was introduced to relieve the pressure. The condition of the man became, however, rapidly worse and he died on December 1st, 1923.

The protocol of the post-mortem examination

with reference to the lungs reads as follows: On removing the sternum no air escapes from the left pleural cavity. The left lung is collapsed in a stairway like form, the lateral portion being only 1/2 cm. thick. There are firm adhesions around the upper lobe and between the base and diaphragm. The lung is pale in color and is emphysematous throughout. In the upper lobe there are seen numerous emphysematous blebs protruding from the surface and resembling the same appearance as a cystic kidney. No tear can be found. The lung is placed in water, a tube is introduced into the main bronchus and air is pumped in. The lung swells up, but escape of air cannot be noticed. The cut surface reveals in the upper lobe the emphysematous blebs with a shiny smooth grayish layer. The largest of these blebs measures 3x2x1 cms. There are also seen numerous pinhead shaped tubercles, caseous in character. In the lower lobe there are numerous fresh tubercles of the miliary type.

The right lung is pale in color. It is free except for the apex, which is adherent to the parietal pleura. The lung is emphysematous throughout. There are numerous emphysematous blebs as described in the left lung. The cut surface reveals in the apex a few communicating tuberculous cavities surrounded by dense fibrous tissue, otherwise it presents the same appearance as the left lung.

Case No. 2. A. F. A 35 year old, white male, barber by occupation, stated on his first admission to the Sanatorium, February 18th, 1920, that he did not know of anyone in his family having had tuberculosis. He did not remember having had the usual childhood diseases. He was, however, often subject to colds and sore throat.

His present illness dated back to the summer of 1918. He had at this time chills, nightsweats, fever and pains in the left side of his chest. His sputum was odorless, occasionally streaked and measured six ounces in twenty-four hours. He was told he had tuberculosis and was sent to the country. In September, 1919, he developed a tuberculous epididymitis, and entered one of the sanatoria in Denver. He left this institution unimproved and entered our Sanatorium. Due to an improvement in his condition, he was transferred to our Convalescent Home in April, 1921. Here his condition became, after a while, again progressive and he was readmitted to the Sanatorium on March 22, 1922.

On his readmission his chief complaints were a paroxysmal and productive cough.

On examination he was found to be poorly nourished and looked to be chronically sick. The shape of the chest was phthisical. In both lungs the signs of a far advanced active pulmonary tuberculosis were elicited.

The examination of the x-ray plate revealed diffuse infiltration of both lungs and annular shadows on both upper lobes.

The sputum contained acid fast bacilli.

His clinical course in the Sanatorium was that of a progressive far advanced case. He had occasionally dyspneic attacks and complained of pleuritic pains. The dyspneic attacks became more severe in December and the patient died on January 1st, 1924.

The necropsy findings in his lungs were as follows: Right lung: Numerous emphysematous blebs were seen in the upper lobe. Making the longitudinal section through the lung, (Fig. 1) it was found

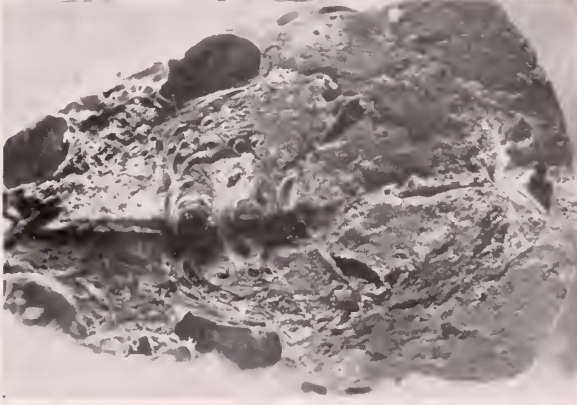


Fig. 1. Cut surface of right lung of Case 2. Large emphysematous blebs.

that the internal lining of the blebs was grayish in color, smooth and shiny. The largest one measured 5x4x2 cms, another one 3x5x2 cms. There were areas of caseation, especially in the apex, and some calcification also was noted. The lower lobe was in a state of hypostasis and there was also an emphysematous bleb measuring 1x $\frac{1}{4}$ x1 cm. therein.

Left lung: The cut section had the same appearance as this of the right lung. (Fig. 2) Below the

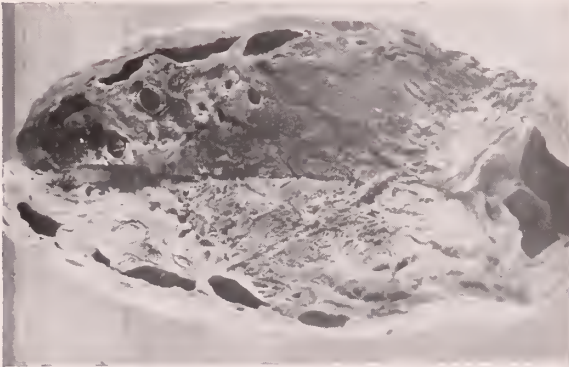


Fig. 2. Cut surface of left lung of Case 2. Below the emphysematous bleb in the apex there is a tuberculous cavity. Below the cavity there are emphysematous blebs.

apex there was a large tuberculous cavity measuring 2x4x1 cms, surrounded by a thick fibrous wall. Scattered caseous nodules were noted in the lower lobe. Making a longitudinal section on the posterior part, there appeared in the apex an emphysematous bleb measuring 2x1x3 cms. In the lower part of the upper lobe there was another emphysematous bleb of about the same size. There were a few smaller blebs between the two de-

scribed. Making a longitudinal section through the anterior part, (Fig. 3) the whole surface of the sec-



Fig. 3. Section through the anterior part of the left lung of Case 2, presenting emphysema throughout the whole surface.

tion had a sponge-like appearance and there were seen small emphysematous blebs of different shapes and sizes, varying from a pinhead to a small pea.

COMMENT

It is certainly surprising that a careful search could not detect any tear of the lung in Case No. 1. However, the man died at least four and a half days after the tear had occurred, so that there was time enough for the tear to become closed through some fibrous exudate, which became organized.

The fact that the pneumothorax was not accompanied by an effusion makes it most likely that the tear occurred from some part of the lung which did not contain infectious material. Considering that on one hand the emphysematous blebs were dry and did not contain anything but air, on the other hand that the weakest spots on the surface of the lung were the outside walls of the emphysematous blebs, we assume that the tear occurred in some of the emphysematous blebs.

In regard to Case No. 2, we found comparing the cut surface of the two lungs, that the distribution of the purely emphysematous blebs of the right side was symmetrical with the distribution of the blebs and tuberculous cavity of the other side. (Figures 1 and 2 show this symmetry quite distinctly.) We assume from this fact, that the formation of the emphysematous blebs was primary and that such emphysematous bleb became secondarily a tuberculous cavity on the left side.

Both individuals were relatively young, at least they did not reach the age when emphysema is common. The emphysematous blebs were evenly distributed. The lungs showed in both cases less anthracosis

than usual in normal cases. A symptom regarded by Virchow² and his view supported by Orth¹ as a proof that emphysema is a hereditary condition. (Correctly reproducing the view of Orth the ability of the lung to become emphysematous is hereditary.)

In the light of these pathological findings, we assume that in both of our cases emphysema was the primary and rather a constitutional condition to which tuberculosis came as a later complication.

The etiology of chronic vesicular emphysema is still under discussion.

Loschke³ believes that the primary cause of emphysema is the malformation of the spine.

Tendeloo⁴ maintains the view that emphysema is purely functional in origin. He thinks that, in chronic coughers, certain parts of the lungs which show the least resistance are so often and to such a degree distended that these parts lose their elasticity and the temporary condition of overdistension becomes permanent.

Still others, as for instance, J. Orth, are of the opinion that emphysema is a constitutional disease. He asserts that, although it is true that emphysema occurs mostly in cases of chronic bronchitis and in persons who are using their lungs to a very great extent, such as speakers, players of wind instruments, glass workers, etc., yet emphysema occurs only in a certain percentage of these individuals. Therefore, the extensive use of the lungs cannot be the sole cause, but merely the exciting factor of the disease.

Orsos⁵ thinks that the toxic results of inflammation have a part in the development of emphysema.

It is but natural that two cases are not sufficient to draw a definite conclusion in regard to the etiology of any disease. But, if we consider that in the tuberculous individuals, more or less all the anatomical and functional disturbances are present, which are regarded as essential factors in the development of chronic vesicular emphysema, and yet the combination of these two diseases is rather a rarity; furthermore, if we take in account the large variety in the size of the blebs with the same amount and severity of cough, we are inclined to accept the view of those authors who believe that chronic vesicular emphysema is a constitutional disease and assume that forced

expiration or inspiration is only an exciting factor in its development.

II.

If the combination of chronic vesicular emphysema with tuberculosis is a rarity, the second form of emphysema, namely the collateral emphysema, is a common occurrence in every form of chronic pulmonary phthisis.

The development of this form of emphysema may be explained as follows:

In all diseases of the lungs where a consolidation of the lung tissue takes place, the consolidated parts lose their elasticity. They cannot distend to such a degree during inspiration as the adjoining normal parts do, due to the contraction of the inspiratory musculature. These consolidated areas constitute, so to speak, fixed endpoints to the adjoining elastic lung tissue, which, therefore, has to become overdistended. If this overdistension lasts for a given length of time, it becomes irreparable and a circumscribed vesicular emphysema develops.

McCallum⁶ states: "When, through tuberculosis, a large portion of the lung is rendered solid, so that it cannot expand with the thorax, the whole inspiratory effort is expended upon the remaining open lung tissue, which thus becomes overdistended."

According to Orth: "Due to the fact, that in case of partial atelectasy, the lung has to extend to the same degree as previous to it, the adjoining normal parts placed under a higher relative pressure have to become overdistended and a collateral swelling of the lungs develops. This is not yet an emphysema, but it can develop into it, if the atelectasy is of long standing. As this is the case in chronic pulmonary phthisis."

We found, like other investigators in our series of necropsies, the collateral emphysematous parts scattered throughout the whole lung. However, the emphysematous parts were most often along the margin, where the conditions of inspiratory and expiratory pressure are, according to Tendeloo, the most favorable for the development of an emphysema.

The occurrence of collateral and marginal emphysema in the course of chronic pulmonary tuberculosis is a long known pathological fact. We think, however, that generally very little clinical significance is attached to it. In our humble opinion, marginal emphysema has its clinical importance, inasmuch as it has a definite bearing on the occurrence of spontaneous pneumothorax in the course of pulmonary tuberculosis.

Spontaneous pneumothorax occurs (apart from a few cases reported in the literature where no explanation or underlying pathology could be found) during a forced respiratory effort like coughing, laughing, lifting a heavy weight, etc., mostly in a tuberculous or emphysematous lung. During a forced expiration the marginal parts of the lung are forced inward to the alveoli. It is but natural that emphysematous parts lacking in elastic fibers are less resistant to every force, than the normal lung tissue. Therefore, a rupture of the lung tissue will be more easily produced in an emphysematous bleb than in the other parts of the lung, even tubercles or tuberculous cavitations, which are protected to an extent by the thickened pleura. The emphysematous bleb being small, in its usual form the size of a pinhead or even smaller, and close to the tuberculous lesion, it can be easily overlooked.

The potential danger of a pneumothorax is markedly aggravated by every surgical interference in the treatment of pulmonary tuberculosis. Every puncture of the pleural cavity bears in itself the possibility of producing a closed pneumothorax. We think that the marginal emphysematous blebs are to a certain extent responsible for this complication. If the operator happens to puncture the normal parts of the lung, this puncture wound will be closed due to the elasticity of the normal lung, just as when we aspirate from a vaccine bottle covered with a rubber cap, the hole caused by our needle will be closed after its withdrawal. But, if we happen to puncture a marginal emphysematous bleb, where the lung tissue is lacking in elasticity, the hole caused by our puncture will remain patent and we open through it the way for the air from the alveoli into the pleural cavity.

We assume that these marginal emphysematous blebs are responsible on many occasions for the higher percentual incidence of spontaneous pneumothorax in the course of artificial pneumothorax than in the untreated cases; also in instances where we can safely state that the lung tissue was not injured by the operator. I. D. Bronfin⁹ reported a series of interesting cases of this sort.

On opening the pleural cavity we find the emphysematous blebs bulging outward from the surface of the lung. This bulging is, according to J. Orth, due to the unequal retraction of the lung surface. The normal parts will retract due to their elasticity to a greater extent than the blebs lacking in elasticity.

It is generally accepted that, under nor-

mal conditions in vivo, the lung is adjacent to the chest wall. In case of a pneumothorax, however, when the air in the pleural cavity keeps the lung under constant pressure, the difference in the elasticity of the emphysematous parts, how small they may be, must become apparent, as it can be observed on the large ones at post-mortem examinations.

We assume that, in the course of pneumothorax, the normal elastic lung tissue will show a certain resistance toward the pressure of the air, while the emphysematous parts will easier give way to it and they will be forced into the alveoli. Thus they will become more distended. This distension alone may result in a rupture. Or, as it happens in the bulk of these cases, during a forced expiration, as in coughing spells, when the expiring pressure increases, due to the closed glottis, to an enormous degree, this already distended part will more easily rupture.

W. S. Duboff¹⁰ assumed, in his study about tuberculous empyema, counting under this headline also the effusions occurring in the course of spontaneous pneumothorax, that empyema develops after a rupture of the lung wall. If this assumption is correct, then the collateral emphysematous blebs have to be made responsible to a certain degree also for the occurrence of empyema.

It is obvious that the collateral emphysematous areas will increase in size and number with the duration and progression of the tuberculous process. In other words the older the tuberculous lesion, the more numerous the areas involved in it, the less resistant will be the lung surface toward any force. We have to expect, therefore, that the more advanced and of longer duration the cases are, in which we have to resort to an artificial pneumothorax, the greater will be the incidence of spontaneous pneumothorax and effusion in the course of our treatment. This explains, we assume, why we do encounter in the series of our artificial pneumothorax cases, a higher percentage of spontaneous pneumothorax and effusion, than reported from other institutions dealing with less advanced cases.

Drawing a practical conclusion from our experience we would like to point out that by delaying to resort in a suitable case, to artificial pneumothorax therapy, we increase also the possibility of spontaneous pneumothorax and effusion, the undesirable complications of our therapeutical efforts.

The pathological causes of a closed pneumothorax are many fold. It can be caused

by the rupture of a caseous tubercle, tuberculous cavity, tearing of pleural adhesions and emphysematous blebs. We assume that a conclusion can be drawn in regard to its origin by analyzing the clinical complications. The clinical complications of a closed pneumothorax may be a serous, purulent, sanguinolent or hemorrhagic effusion. Inasmuch as the emphysematous bleb is mostly steril, we assume that its rupture will be accompanied by no complication of a serous exudate. The caseous tubercle and tuberculous cavity always contain infectious material; their rupture will be accompanied, therefore, by a purulent exudate. The tearing of pleural adhesions including a part of the lung will be accompanied by a hemato-pneumothorax.

III.

The third form of emphysema occurring in the course of chronic pulmonary tuberculosis is the interstitial emphysema. There the air finds its way through a rupture of an alveolus into the interalveolar septa. In one of my cases I found an emphysema of the anterior mediastinum caused by this form. Schwenkenbacher¹¹, Wentzler¹² and others have reported cases of interstitial emphysema in the course of epidemic influenza in which the air reached the subcutaneous tissue of the neck and chest.

IV.

Inasmuch as our autopsy material represents only cases of far advanced bilateral pulmonary tuberculosis, I have had no opportunity to include in this study the most common form of emphysema in unilateral lung tuberculosis, namely, the so called compensatory emphysema. But the simple consideration that emphysema is a destructive process and it lessens the breathing surface, makes it difficult to conceive that the healthy lung would take over, through an emphysema, the burdens of the diseased, as is the general conception of the genesis of this form.

Finally I want to thank Dr. H. Gauss for his kind help in conducting and preparing this study.

SUMMARY

1. Two cases of chronic vesicular emphysema are reported in rather young individuals with unusually large emphysematous blebs and complicated with tuberculosis.

2. It is assumed that emphysema is rather a constitutional disease and the respiratory factors are more an exciting cause in its development.

3. Collateral vesicular emphysema ag-

gravates in chronic pulmonary tuberculosis the dangers of a lung rupture and plays a great part in the occurrence of spontaneous pneumothorax per se, or in the course of artificial pneumothorax therapy.

4. The pathological cause of a spontaneous pneumothorax may be determined to a certain degree by the analysis of its complications.

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CLINICAL NOTES ON A RARE TUMOR PROBABLY HYPERNEPHROMA

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(Presented before El Paso County Medical Society, January 26, 1925.)

P. E. Patient: Male, age 52. four or five years ago complained of awful bloating; also had spots on hands, legs, and back of head which would go to sleep; spot also on back of thigh; this has just started again, but no more trouble with head lately, just thigh and fingers; makes him sick at stomach to drive in car or ride on street car; no disturbance with digestion; does not eat much; for about ten days or two weeks has been belching; never before; 175 pounds normal weight; went to 194 last summer; first noticed then that he didn't look well, face was bloated; never weighed this before; has terrible headaches; first headache in September, at four or five o'clock in the morning, lasted until noon once, and another time until four in afternoon; had four teeth taken out last week; doesn't have nausea with headache, except that he took aspirin and threw that up; does not have night sweats; perspires on head, actually drips; under throat also.

P. E. In the upper left quadrant of abdomen there is a tumor six inches in diameter, hard and nodular, and can not make out any attachment to the live; moderate excursion on respiration; definite line of tympany between tumor and liver; Wassermann negative; a secondary mass can be felt below main one, which from the shape and feel suggests a kidney; the main mass extends well downward toward the back of abdomen, but does not originate from the kidney space; he never had yellow jaundice, typhoid fever; never lived in the tropics; never even been down in tropics; x-ray shows heart and lungs both all right. Mother died of heart trouble, father of apoplexy. X-RAY. 1-7-25. G. I. Tract: The stomach is negative for filling defects; stomach is pushed forward and to the right by tumor mass in upper left quadrant, stomach emptied rapidly; on 24 hour examination the splenic

flexure was pushed downward and forward; tumor mass is apparently posterior to stomach and splenic flexure; flat chest, negative for definite pathology. (CHM). X-RAY. 1-7-25. Dentals Alveolar abscess first bicuspid upper left; apical absorption upper left lateral; absorption root socket both upper centrals; alveolar abscess upper right cuspid, first molar lower left; general alveolar absorption; there is a small piece of metal against bone in lower left third molar area, probably old filling. G. U. Tract: The left kidney shadow appears pushed down to the upper border of the sacrum; the right kidney shadow appears normal.

BLOOD. Wasserman test negative; white count 12,000; Polys. 74%.

BLOOD PRESSURE. Systolic 190, diastolic 110; Dr. Stark says he has some retinal hemorrhage, probably due to blood pressure.

URINE. Negative.

DISCUSSION

Strictly confined to the left upper quadrant; the tumor reaches slightly below the umbilicus; the origin of the tumor is probably retroperitoneal as indicated by the fact that it displaces the stomach to the right and forward, displaces the splenic flexure of the colon downward and forward, displaces the kidney downward until the upper pole is an inch below the last rib; it is probably not a tumor of the stomach because he has had no gastric symptoms except gas, and there is no filling defect; it is not a tumor of the left lobe of the liver because this would be in front of the stomach and would not displace it laterally, and would be in front of the transverse colon and splenic flexure instead of displacing them downward; it is probably not a tumor of the pancreas because these tumors are usually in the mid-line; it is only cysts that reach such size, and this is a hard, lobulated tumor; a malignant tumor of the pancreas to have reached this size would long since have caused jaundice and metastasized to the stomach and its surrounding organs; in addition he would probably have had sugar in his urine, and the tumor would be fixed; also he would have had more pain and the tumor would have increased in size more rapidly; it is probably not a tumor of the spleen because this should have come out in front of the stomach and transverse colon; the splenic enlargement usually makes its appearance at the level of the umbilicus instead of high up in the epigastrium; it usually has a sharp edge and a notch; nearly all conditions causing enlargement of the spleen leave it smooth and uniformly enlarged; malignant tumors of the spleen are rare, and this is probably not a malignant tumor because of the slowness of its progress; there are no blood changes to indicate other diseases of the spleen; as to the kidney, the tumor has made its appearance in the abdominal cavity too high up; the

kidney usually presenting from the flank; it feels like a large polycystic kidney, but if so, it only involves the upper pole, which is not to be expected, as polycystic kidney is almost always bilateral, and we cannot make out any enlargement of the right kidney; the tumor is also harder than the usual polycystic kidney; it is not hydronephrosis, as he has had no kidney symptoms, no attacks of pain, and no intermittent passages of large quantities of urine; hypernephroma would have to be seriously considered as the tumor is hard and slow-growing, which a hypernephroma might be; also retro-peritoneal enlargement and displacing the stomach to the right and forward, and the colon and the splenic flexure downward and forward; however, he has had no kidney symptoms, and has passed no blood; the tumor has appeared high up instead of at the flank, and he has had no pain, which he likely would have had with hypernephroma before it had attained this size; in addition, as against any tumor of the kidney, the left kidney is definitely shown in the x-ray to be practically normal in size and displaced downward; it could not be a tumor of the omentum as this would be in front of the stomach, in front of the colon, and would not displace either the stomach or the kidney; a tumor growth in the lesser peritoneal cavity would displace the stomach forward and possibly to the right, but it would remain more in the median line, would not displace the left kidney and would originate from the peritoneum or lymph glands; an enlargement of this size with either origin, would probably be malignant and would have involved the stomach and surrounding organs long since; a post-peritoneal tumor originating above and in front of the kidney, consisting of fat and fibrous tissue, could attain this size, would cause this displacement of the stomach and splenic flexure, might displace the kidney, would be lobulated and hard, and might or might not be malignant; in this particular case we would not expect it to be malignant as this tumor was discovered by accident last June, seven months ago, and has not perceptibly increased in size; relative to the question of this tumor being malignant, regardless of the origin, there are two outstanding symptoms against it, slow growth and absence of pain.

OPERATION

Left rectus incision six inches long, beginning at the xiphoid cartilage; one inch above umbilicus incision was turned off to left towards the flank; left kidney displaced as shown in x-ray; upper pole is in direct contact with tumor; is not attached; right

kidney quite normal in size and location; right lobe of liver is normal size, even with costal margin and normal consistency; left lobe of the liver crowded to the right; the entire liver only reaches to the mid-line; the upper surface of tumor in direct contact with diaphragm; the upper surface of tumor semi-fluctuating; the spleen normal size and crowded up against costodiaphragmatic angle and long axis turned anterior posterior; tumor is definitely retro-peritoneal; tumor practically round; tumor larger than child's head; tumor surface covered with very large blood vessels resembling sarcomatous tumor; it was shelled out of capsule, which left considerable venous bleeding. After the abdomen was well opened the tumor could be seen back of the mesentery of the colon and of the gastro-colonic omentum covered with very large tortuous blood vessels; the splenic flexure was drawn to right and an incision was made in the outer layer of the mesocolon in the direction of the circulation; this opening was extended onto the lateral abdominal wall and the tumor was enucleated; while there was oozing everywhere, there was only serious bleeding at one point; there was one point on the inner posterior aspect of the tumor where in loosening it we tore a piece out of the wall of tumor three-fourth inch in diameter, and this pedicle contained a large blood vessel which was ligated; the wound was closed in layers with through and through silk-worm gut; the tumor was retro-peritoneal. Between 1400 and 1500 cc saline given on table.

FURTHER DISCUSSION

The tumor was found to correspond exactly in outline as indicated by x-ray; the fact that it was necessary for the tumor to be retro-peritoneal to cause these displacements was demonstrated; it was in exact location that clinical examination and x-ray indicated it should be; the only difference was the character of the tumor; clinically it looks to be sarcoma; exactly what a sarcoma in this location could originate from was not demonstrated at operation; an enlarged gland, which looked most like a pedicle, was in the thing, so that it may have originated from a lymph gland.

Report by Dr. W. W. Waite:—

Probably primary hypernephroma of the left adrenal. However, the tumor requires further study before a final decision is made.

GOUT IN THE EXTERNAL AUDITORY CANAL—CASE REPORT

HARLEY YANDELL, M. D., Phoenix, Ariz.

Patient is a male, age 65, a "high liver" but thin,

muscular and of nervous temperament. A patient in the Phoenix Sanatorium. For the past seven years has noticed a full feeling and, at times, a pain in the left ear. There is no deafness. On the floor of the canal, extending all the way back to the bony portion, there was a hard, gritty, plate-like substance which gave a peculiar sense to the touch of the probe. The feeling differed from that of dead bone, being more like sand-stone. This material, forming a mould of the canal floor, was removed piece by piece and submitted to the Pathological Laboratory, Phoenix, who reported the deposits to contain the characteristic needles of biurate of soda, similar to those found in the tophi of gouty joints.

The cartilaginous portion of the canal floor was replaced in toto by the gout deposits. The area beneath the plate-like deposit was found to be pustular; this was cleansed and antiseptically treated with creosote and iodoform packs, which thus far has relieved this condition of seven years standing.

A CASE OF SERIOUS BRAIN INJURY WITH A DISCUSSION OF CLINICAL ASPECTS AND POSTMORTEM FINDINGS

W. L. Brown, M. D., and C. P. Brown, M. D.,
El Paso, Texas

Patient, female, white, age 52, injured 1:30 p. m., Feb. 14, 1925, by being struck with an automobile which threw her to the pavement, striking on the right side of the head three inches above and back of the ear. She was profoundly unconscious when picked up, with pulse 46 and irregular, left pupil widely dilated, right normal; neither reacted to light; pulse somewhat irregular during afternoon, and at 5 p. m. both pupils were widely dilated and inactive; stertorous breathing; no paralysis of limbs, and no strabismus; no bleeding from nose, ears, or mouth, and no subconjunctival hemorrhage; however, she had some spasticity of both arms and legs somewhat more marked in right arm. At this time she was considered to have serious brain injury with no indications for operative interference: seven hours after injury the spasticity was still more marked in the right arm; the left pupil remained dilated and inactive; she was having involuntary urination, with pulse 65; temperature 101½ axillary; eighteen hours following injury her systolic blood pressure was 80, spinal pressure 10 mm of mercury, still having involuntary urination, still profoundly unconscious, left pupil remaining dilated, and spasticity more marked in limbs, but particularly in right side.

DISCUSSION

This patient had every evidence of most profound brain injury, diffuse in character from the time she was picked up; there were focalizing symptoms, irritative in nature, not paralytic; while she was struck on the right side of head towards the back, and had a definite contusion of the scalp at that point, the inactive dilatation of the left pupil and the spasticity more marked on the right side of her body both indicated the lesion to be on the left side of the brain; the spasticity indicated cortical irritation and the widespread nature indicated an extensive cortical lesion, probably subdural hemorrhage, not sufficient to cause pressure paralysis; dilatation of the left pupil indicated a lesion on the same side of the brain towards the base, involving fibers of the third nerve which furnishes motor branches to the iris; in other words these symptoms indicated a contrecoup lesion, diffuse in nature; immediate and profound coma, stertorous breathing, low systolic blood pressure, immediate development of temperature, immediate development of diffuse spasticity

like meningitis, with blood stained spinal fluid, with but slightly increased pressure, were all of bad prognostic import and contraindicated, even from the beginning, a decompression operation. The autopsy findings checked out exactly as they should have done with the above clinical picture; that is, there was a diffuse, thin layer of blood under the dura over the whole left side of the brain; this accounted for the extreme spasticity on the right side of the body; there was very moderate contusion immediately under the site of injury on the right side over the cortex, accounting for some spasticity on the left side of the body; there was much laceration of the brain substance at base of temporal lobe, involving the fibers of the third, accounting for the dilated left pupil; the autopsy indicated nothing would have been accomplished by operation as there was nothing focal that could have been relieved, and there was no indication for decompression, as there was no increased intracranial pressure of consequence; early decompression in many injuries of the brain, even in the absence of focal symptoms, but where there is greatly increased intracranial pressure, as shown by the spinal manometer and an increased systolic blood pressure, will often prevent death from edema of the medulla, which develops in a few hours following the injury and may increase the intracranial pressure beyond safety to life.

CASE REPORT OF GANGRENE OF BOTH LEGS DUE TO EMBOLISM

DR. G. WERLEY, M. D. El Paso, Texas.

Mr. L. B., age 48, each, one child age 20, four brothers and two sisters, all living and well.

P. H.: Usual diseases of childhood, no sequellae. At 14 had inflammatory rheumatism and has had it several times since, also tosicillitis, especially the past two years. Has always been nervous, sometimes "hysterical." Last November, had influenza with fever and general pains. Got out in a few days but had not been well and was short of breath.

P. I.: Dec. 7th, while at the telephone she had sudden pain in both legs and fell to the floor and was unable to rise. Her physician saw her and suspected that she was again "hysterical." Anti-rheumatic treatment was given. Dr. Pickett saw her Dec. 12th. At that time the right leg had practically recovered but was still painful. The left was very painful; the foot was pale and the leg mottled. Dr. Pickett diagnosed embolism and gave a bad prognosis. I saw her Dec. 14th. She was still in great pain. The sole of the foot was gangrenous. The foot and part of the leg were insensitive, but the upper third of the leg and thigh were very sensitive to touch. Morphine was constantly necessary. I found the heart much dilated with a loud mid-diastolic rumble, the rhythm absolutely irregular, and a pulse rate of 150 and over. The fever ran from 99 to 102. The leg became gangrenous in the lower two-thirds. Under digitalis, the pulse slowed to 80. Blood pressure 120/80.

On Dec. 21st, the leg was amputated at the lower third of the thigh by Drs. Pickett and Crouse under spinal anesthesia. Patient went to sleep and felt nothing. No shock. Pulse rate did not rise. Made good progress for the next two weeks, with pulse and temperature about the same. Then while talking to her brother she said: "I feel as though as though something terrible is going to happen." Almost immediately the right leg became paralyzed and very painful. It went through the same changes as the other leg and became gangrenous to the knee. The temperature gradually rose to 103 and 104, axillary, and the pulse went to 150 and 160. Under very large doses of digitalis, the pulse

came down again to 90. There were rales and dullness at the bases of both lungs. Jan. 13th, she vomited a few times but her condition seemed unchanged. During the night she failed rapidly and died at 3 a. m., Jan. 14th.

Clinical Diagnosis: Mitral stenosis; auricular fibrillation; moderate ventricular hypertrophy; ulcerative endocarditis (?); hypostatic pneumonia; embolism in both legs

What about her hysteria? As is only too often the case her nervous symptoms had a grave organic cause.

In auricular fibrillation embolism is quite common.

Post Mortem Findings (Dr. W. W. Waite: On opening the chest there was no excess of fluid. Lungs were dark red in color, markedly congested, and in the pulmonary arteries there were large organized blood clots. Grossly, it was impossible to tell whether the change in the lungs was due to infarct or whether some pneumonia was present.

The heart was considerably enlarged and all the chambers were filled with an organized blood clot that occupied nearly all the space. This clot extended into the pulmonary arteries and into the aorta. It was impossible to tell where this thrombus originated from. *At the bifurcation of the aorta there was a riding thrombus* which did not seem to be attached, and both iliaes were almost completely obliterated by thrombi.

Spleen was about twice normal in size and showed an infarcted area.

Kidneys were somewhat larger than normal, capsules stripped with difficulty, leaving a nodular roughened surface. There were also numerous depressions apparently the results of healed infarcts.

Liver was somewhat swollen, cut surface showed a decidedly nutmeg appearance. Gall bladder was contracted and was filled with stones.

On further examination of the heart, the cusps of the mitral valve were grown together, leaving only a small opening. The cusps of the aortic valve were slightly thickened but presented no ulcerations. The clot in the aorta extended into one of the coronaries, possibly both of them. Of all the thrombi, the one in the left ventricle was densest and seemed to be the oldest. The aorta as a whole was in very good condition, there being only a very few delicate sclerotic patches with no calcification. The intima of the ascending aorta was possibly slightly thickened.

Autopsy Diagnosis: Chronic endocarditis with mitral stenosis. Thrombi involving all of the chambers of the heart. Embolus at the bifurcation of the aorta. Thrombi of both common and external iliaes including the right iliac vein. Cholelithiasis and chronic passive congestion of the liver and chronic nephritis.

No doubt the operative removal of the riding thrombus at the bifurcation of the aorta would have relieved the situation, had it been possible to make this diagnosis sufficiently early.

DR. E. A. GATTERDAM, of the Veterans' Bureau Hospital, Fort Whipple, Ariz., has been visiting friends in Phoenix, after returning from several months spent in postgraduate work in the East. Included in this study was two months at the General Hospital, Cincinnati, under Dr. Kennon Dunham, reviewing the pathology of tuberculosis and the radiographic interpretation of chest lesions.

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BISBEE—THE COPPER QUEEN CITY

Bisbee is one of the most remarkable cities in the entire west, and doctors in Arizona who have not visited it and become acquainted with its interesting history and industry should not lose the present opportunity.

Like several other cities in Arizona, it is founded entirely on copper mining, and is the "Queen City" in very fact from the standpoint of that industry. With some of the most famous mines in the world honeycombing the earth beneath and the mountains around it, it presents on the surface a modern city, with excellent hotels, high-class hospitals, beautiful stores, magnifi-

cent schools, good street car system, and every convenience of the metropolis which it justly claims to be—the third city in population in the state. The mines of Bisbee are reported to have more than 300 miles of underground railway, and some of them go down into the earth more than 3000 feet. The members of the Association and visitors who desire to explore the underground workings will have that privilege, in charge of competent guides.

The Phelps Dodge Hospital in Bisbee and the Calumet & Arizona Hospital in Warren will be eye-openers to those doctors who have never yet visited them; they illustrate well the lengths to which modern industry goes in caring for injured employees.

The Copper Queen Hotel (see figure) is one of the famous hotels of the state. Built into a hillside overlooking the center of the city, it furnishes delightful accommodations for its guests, with a dining room service equal to that found anywhere. Reservations should be made in advance by those expecting to attend, as this hotel is usually crowded.

When approaching Bisbee by auto, the view from the summit of Tombstone Canon reminds one irresistibly of some of the cities in the Alps of Switzerland, with the surrounding mountains and the closely built city a thousand feet or more below in the canon-like valley.

In the lower portion of the city there has been going on for several years, a gigantic undertaking; this is the removal of Sacramento Hill, a veritable mountain of ore, which is being taken out by steam shovels.



Copper Queen Hotel—Headquarters for the Association.

Several years ago the earth in this hill was loosened by a massive blast containing 100,000 pounds of giant powder. This delicate operation of blowing up a mountain located in the middle of a city of 15,000 people without injuring people or property was accomplished without mishap, and since then a large portion of the hill has been taken away and converted into copper (see illustration). The copper ores of the Bisbee district have been, for the most part, high grade smelting ores, handled without the necessity for concentrating. When it was decided to use the ore in Sacramento Hill, a concentrator became necessary and this has been constructed within the last few years. A visit to this concentrator is well worth a visit to Bisbee, and this courtesy will be available to the members and guests of the Association. An aeroplane view of the concentrator is shown in the accompanying figure.

The City of Douglas is 25 miles from Bisbee, connected by a fine paved highway. The Mexican city of Agua Prieta, in whose Social Club the smoker will be held on Thursday evening, is a suburb of Douglas, and the chief support of this community is furnished by the smelter industry; the ores are hauled from Bisbee to Douglas by railroad.

Members who come to Bisbee by auto

will pass through the historical town of Tombstone, one of the oldest towns of the state, famous for its silver mines, now flooded with water, and its tales of wild days of early Arizona. Tombstone is the county seat of Cochise County.

The illustrations published herewith are loaned SOUTHWESTERN MEDICINE by the Bisbee Chamber of Commerce; they are new cuts just secured by the Chamber and this is their first appearance in print. They are to be used in the advertising literature of the Bisbee Chamber. The Chamber of Commerce will take a prominent part in the entertainment of the Association, handling their registration at the Copper Queen Hotel, and furnishing guides and information for those who desire to see interesting features of this modern mining metropolis.

PROGRAM MEDICAL ASSOCIATION

The program for the Thirty Fourth Annual Meeting of the Arizona State Medical Association has been in charge of Dr. George H. Fitzgerald of Bisbee, who has gathered together a most attractive list of papers. The program covers the things in which the medical profession in Arizona is most interested, and fills three days. The program is not overcrowded but is filled with meat. It is here given in full:



Bisbee, looking north from Queen Hill.

PROGRAM

THURSDAY, APRIL 16, 1925

MORNING SESSION

- 10:00—Call to order.
DR. C. A. THOMAS, Tucson
President
Invocation:
REV. D. N. SCOTT, Bisbee.
Introduction of President-Elect:
DR. R. D. KENNEDY, Globe.
- 10:10—Address of Welcome:
A. G. MCGREGOR, President Bisbee Chamber of Commerce.
Response:
DR. JOHN E. BACON, Miami
SCIENTIFIC SESSION
- 10:30—DR. H. A. REESE, Bisbee.
"Conservative Obstetrics"
Discussion: DR. W. V. WHITMORE, Tucson.
- 11:00—DR. ORVILLE H. BROWN, Phoenix
"Vaccine Therapy"
Discussion: DR. R. J. STROUD, Tempe.
- 11:30—DR. J. I. BUTLER, Tucson.
Discussion: DR. J. L. MCKNIGHT, Tucson.

AFTERNOON SESSION

- 1:00—House of Delegates.
- 2:00—DR. WILLIAM ALLEN PUSEY, President American Medical Association, Chicago, Ill.: "The Situation in the Treatment of Syphilis."
- 2:30—DR. H. T. BAILEY, Phoenix: "Thyroidosis from Infected Tonsils."
- 2:50—DR. WARNER WATKINS AND C. N. BOYNTON, M. A., Phoenix: "The Value of Basal Metabolism Determinations, with Reports on 600 Tests."
Discussion: DR. P. B. NEWCOMB, Tucson and DR. A. E. CRUTHIRDS, Bisbee.
- 3:30—DR. R. D. KENNEDY, Globe: "Some of the Most Common Deformities of the Feet."
- 3:50—DR. EDGAR BROWN, Phoenix: "Knee Joint."
Discussion: DR. E. W. ADAMSON, Globe.
- 4:30—DR. D. F. HARBRIDGE, Phoenix: "Intra-ocular Hemorrhages."
Discussion: DR. JOHN COOK, Douglas.

EVENING SESSION

- 7:30—SMOKER. Club Social, Agua Prieta, Mexico.

FRIDAY, APRIL 17, 1925

MORNING SESSION

- 8:30—Council Meeting.
- 9:30—DR. VICTOR RANDOLPH, Phoenix: "Newgrowths in the Chest."
Discussion: DR. S. H. WATSON, Tucson.
- SYMPOSIUM ON TUBERCULOSIS
- 10:00—DR. J. L. MCKNIGHT, Tucson: "The Differential Diagnosis of Diseases of the Chest from the X-Ray Standpoint."
- 10:00—DR. JOHN W. FLINN, Prescott: "Pneumoconiosis and Its Relation to Tuberculosis."

- 10:40—DR. R. J. CALLANDER, Tucson: "Bronchiectasis, Its Diagnosis and Treatment."
- 11:00—DR. E. W. PHILLIPS, Phoenix: "Pulmonary Tuberculosis Complicated by Asthma."
Discussion: DR. W. E. McWHIRT, Prescott; DR. W. WARNER WATKINS, Phoenix; DR. C. W. MILLS, Tucson.

AFTERNOON SESSION

- 1:00—House of Delegates.
- 2:00—DR. PHILIP B. NEWCOMB, Tucson: "Blood Cell Volume Index in Pulmonary Tuberculosis."
- 2:20—DRS. C. E. YOUNT and JOHN D. BROOKS, Prescott: "Further Observations on Surgery of the Tuberculous."
Discussion: DR. R. B. DURFEE, Bisbee; DR. WILLARD SMITH, Phoenix.
- 3:00—DR. VICTOR M. GORE, Tucson: "Intestinal Obstruction."
Discussion: DR. WM. O. SWEET, Phoenix.
- 3:30—Special Feature.

EVENING SESSION

- 7:30—Annual Banquet and Dance.
President's Address: DR. R. D. KENNEDY.
Address: DR. WM. A. PUSEY.

SATURDAY, APRIL 18, 1925

MORNING SESSION

- 8:30—Council Meeting.
SYMPOSIUM ON INDUSTRIAL MEDICINE
- 9:30—DR. GEORGE BRIDGE, Bisbee: "Some Problems of the Industrial Surgeon."
- 9:50—DR. N. C. BLEDSOE, Bisbee: "Lung Conditions Aside from Tuberculosis and Silicosis Found in Miners."
- 10:10—DR. WM. B. WATTS, Miami: "Fractures of the Pelvis and Back."
- 10:30—DR. C. R. SWACKHAMER, Superior: "Industrial Hernia."
- 10:50—DRS. F. T. WRIGHT and CARL LUND, Douglas: "Twenty-five Years of Fractures."
Discussion: DR. C. A. THOMAS, Tucson; DR. ROBT. FERGUSON, Bisbee; DR. W. A. HOLT, Globe; DR. JOHN E. BACON, Miami.

AFTERNOON SESSION

SYMPOSIUM ON UROLOGY

- 2:00—DR. C. A. DUNCAN, El Paso, Texas: "Kidney Function Estimation in General Practice."
- 2:20—DR. CHAS. S. VIVIAN, Phoenix: "Anuria."
- 2:40—DR. W. G. SHULTZ, Tucson: "Medical Urology."
Discussion: DR. J. I. BUTLER, Tucson; DR. CARL LUND, Douglas.

BUSINESS SESSION

- General Assembly of House of Delegates.
Election of Officers.

DELEGATES TO THE ARIZONA ASSOCIATION

The House of Delegates will have some important matters to consider at the Bisbee meeting, and a full representation is expected. The eleven county societies are entitled to delegates as follows:—

Cochise County	-	-	-	3
Coconino County	-	-	-	1
Greenlee County	-	-	-	1
Gila County	-	-	-	3
Mohave County	-	-	-	1
Maricopa County	-	-	-	8
Navajo-Apache County	-	-	-	1
Pima County	-	-	-	3
Santa Cruz County	-	-	-	1
Yavapai County	-	-	-	2
Yuma County	-	-	-	1

The president, secretary and three councillors are members of the House of Delegates; ex officio.

IMPORTANT NEWS ABOUT THE BISBEE MEETING

The Smoker for the men will be held on Thursday evening, April 16th, at 7:30, at the Club Social, Agua Prieta, Mexico. This is a suburb of Douglas which is an hour's ride from Bisbee by auto over an excellent paved highway.

The "Entertainment" feature at 3:30 Friday afternoon will be a very unusual and instructive program, furnished by Drs. Alvin Kirmse and Samuel H. Watson, of Tucson. It will be one of the features of the meeting.

Dr. Pusey's evening lecture on "The Social and Economic Condition of the Medical Profession," is scheduled for Friday evening. It is not yet known whether Dr. Pusey will be able to remain that long and it is possible that this may be given Thursday evening, at the smoker.

Golf enthusiasts will have plenty of time for nine holes before each morning session, by getting up and starting at six o'clock. A golfer who is not enthusiastic to this degree is not worthy of the name of "bug."

Dr. William A. Pusey, President of the American Medical Association, will attend the meeting and give two addresses, one before the Scientific Session and another before one of the evening meetings. Dr. Pusey comes on the personal invitation of the Secretary, Dr. D. F. Harbridge, and will be brought to Bisbee by Dr. Harbridge by auto, making stops for addresses at Phoenix and Tucson under the auspices of the Arizona Industrial Congress.



Airplane View of Copper Queen Concentrator, Bisbee.

Be sure to make reservations at the Copper Queen Hotel well in advance. This hotel is always crowded, and accommodations in Bisbee will be hard to secure elsewhere.

On arrival at the Hotel, register at the Chamber of Commerce desk, which is located in the lobby of the hotel. Secure badge and information from the clerk in charge. The Entertainment Committee will then be able to locate you and provide for the comfort and welfare of the visiting ladies. Members and other doctors are supposed to show up at the meeting place on time.

The Scientific Sessions will be held in the Masonic Hall. Registration Clerk will direct you how to find this. The Sessions will start promptly on time and papers and discussions must be presented within the time limit.

COCHISE COUNTY (Ariz.) MEDICAL SOCIETY

Met in regular session at the City Hall, Douglas, March 7, 1925. Present: Drs. Causey, Darragh, Fitzgerald, Adamson, Bledsoe, Tuttle, Alessi, Wright and Lund.

There was read a communication concerning the Gorgas Memorial. Communication was tabled.

Dr. Bledsoe reported on plans for the social side

of the approaching state meeting to be held in Bisbee, April 16, 17, and 18. He reported the collection of the assessment recently made.

Dr. Fitzgerald reported that he had a full program of papers for the state meeting.

There followed a general discussion of the details of the social and professional program.

Dr. Wright reported on the defense fund of the state association, saying that it contains \$2799.24 which is drawing 4% interest. There is also a savings fund of \$2919.46 which also draws 4% interest. The defense fund is available at any time; the savings fund is kept as a final reserve to be drawn upon only in emergency. He reported that there are no suits on at present. All suits which have been brought to trial have been settled in favor of the doctor. All other threatened suits which did not go to court have been terminated without the doctor having been penalized. The secretary of the state association has established working relations with the secretary of the California State Society with the result that the California men have refused to come over to Arizona to testify. The profession has become consolidated. There has been worked up a successful method of defense which depends somewhat upon the fact that our regular attorneys have become more familiar with the intricacies of such cases than the average lawyer. Dr. Harbridge is a good man in the work and the whole medical defense movement is in good shape. Dr. Harbridge feels that in the near future there is prospect that the fund will become self sustaining from the interest earned and that the annual assessments can be reduced.

Dr. N. C. Bledsoe reported a clinical case accompanied by a series of x-ray films. A woman who had no other previous ailments except diphtheria incurring attacks of "biliousness." These have been

Bisbee Welcomes the Arizona State Medical Association

Copper Queen Hotel

GEM OF THE BORDERLAND

Bisbee, Arizona

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childhood. For the past eight years has had remarked by pains in the region of the splenic flexure and attacks of vomiting with headache. The pain would disappear after vomiting. Lungs and abdomen negative. Urine showed slight trace of albumen and few pus cells. He decided to give her a barium meal and make a series of x-ray films of the abdomen. The films showed two areas of opacity in the region of pelvis and substance of the left kidney. An incision through the cortex into the pelvis of the left kidney made possible the removal of one large and 10 small renal calculi. The patient was entirely relieved by the operation.

Dr. F. T. Wright reported a case accompanied by an x-ray film which showed an aneurysm of the thoracic aorta. This occurred in a man who had a positive Wasserman, a systolic blood pressure of 240, rusty sputum, a severe edema of the entire body. He was given Upsher-Smith digitalis, one grain to every 10 pounds of body weight. He was given 20 grains in all, with no nausea, in about 48 hours and after that two or three grains every six hours until pulse was below 70. Since then he has been given two grains a day. The result is that in one week's time the edema has entirely disappeared and he is now able to be up and walk about the house. This case illustrates the value of the newer method of digitalization. The patient did not receive any purgation.

Carl H. Lund, Secretary.

EL PASO COUNTY MEDICAL SOCIETY ROSWELL (N. M.) NEWS ITEMS

(February 2, 1925)

The regular meeting of the El Paso County Medical Society was held at the University Club, February 2, 1925.

Dr. W. E. Johnson read a paper, "Intracranial Birth Injuries." (See elsewhere, this issue). The

subject was very thoroughly covered with reference to causes, diagnosis and suggestions for treatment in those cases in which it is indicated. The general opinion was that these cases often pass undiagnosed if careful examinations have not been made. It was also thought that these cases should be studied by the surgeons and when indicated operative procedure should not be postponed until too late for relief.

Dr. K. D. Lynch read a paper on "Tuberculosis of the Kidney." Dr. Lynch's paper presented a very exhaustive study of this condition. It was discussed by Drs. W. L. Brown, Jamieson, W. W. Waite, F. D. Garrett, G. Werley, J. W. Laws and O. Egbert.

Dr. P. R. Casellas reported two cases of trigeminal neuralgia treated very successfully by diathermy.

The society went on record as being opposed to the passage of any further laws complicating the prescription of alcoholic liquors by physicians.

(February 16, 1925)

The regular meeting of the El Paso County Medical Society was held at the University Club, February 16, 1925.

Dr. E. C. Prentiss read a paper, "Secretin,—Physiological Action and Therapeutic Indication." Discussed by Drs. Leigh and Waite.

Dr. F. P. Schuster described the Haflinger directoscope enumerating its advantages over other types of instruments of this kind.

Dr. Morgan, of Chicago, made some general remarks about anesthesia. The latest development in the field of anesthesia is the use of carbondioxide and oxygen. Dr. Morgan is of the opinion that carbondioxide should be used in all cases of anesthesia to keep up a high carbondioxide in the blood and to stimulate the respiratory center.

Dr. Lucian E. Smith, a medical missionary to



Sacramento Hill; Steam Shovel Pit.

Putting Mother's Milk in Baby's Bottle

COW'S MILK contains a much higher percentage of casein than mother's milk because nature intended it for the powerful digestive ability of the calf.

On the other hand, mother's milk contains a lesser percentage of casein and a much higher percentage of lacto-albuminoid—nature's protective colloid which enables the delicate infant organisms to easily digest and assimilate all the nourishment.

When cow's milk is fed to the infant, modification is necessary to make it more nearly correspond to mother's milk.

First among the available colloids is pure, plain gelatine. (Zsigmondy, Z. Anal. Chem. 40, 1901). When 1% of Knox Sparkling Gelatine, completely dissolved, is added to the prescribed milk formula, the curdling of the casein by the enzyme acids of the gastric juice is prevented, and the nourishment obtainable from the milk is increased by about 23%. It is just like putting mother's milk in the nursing bottle.

Here is the most approved method of modifying baby's milk with gelatine:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in $\frac{1}{2}$ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method in the proportion of $\frac{1}{2}$ teaspoonful of gelatine to a glass of milk. Because of its purity, it is essential to specify Knox Sparkling Gelatine.

A package of Knox Sparkling Gelatine, together with the physician's reference book of nutritional diets will be sent free, upon request, if you will address the Charles B. Knox Gelatine Laboratories, 438 Knox Ave., Johnstown, N. Y.

Africa, was a guest of the society. Dr. Smith has been in Africa seven years, as a missionary. He made a very interesting talk about the customs, conditions and his experience as a medical missionary. Dr. Smith illustrated his talk with a series of lantern slides showing a number of cases before and after operation.

(February 23, 1925)

The regular meeting of the El Paso County Medical Society was held at the University Club, February 23, 1925. This meeting was devoted entirely to clinical cases and case reports.

Dr. James Vance reported a case of osteitis in the left tibia of a young girl eighteen years of age, a case of strangulated inguinal hernia occurring in a woman eighty-four years of age, and another case of strangulated femoral hernia in a woman sixty-four years of age.

Dr. W. L. Brown and Dr. C. P. Brown reported a case of fracture of the skull as a result of an automobile accident. Dr. Brown brought out very thoroughly points that contraindicated operation in this case. The patient died thirty-six hours later, without regaining consciousness. Postmortem examination confirmed Dr. Brown's opinion in this case.

Dr. E. J. Cummins reported four cases of septicemia treated with mercurochrome and gentian violet. Dr. Cummins does not report favorable results from this method of treatment.

Dr. P. R. Casellas showed very interesting series of slides of conditions diagnosed by x-ray pictures. These included diverticulum of the stomach, stones in the kidney and ureter, hydronephrosis, hypernephroma, encapsulated empyema, fracture of the femur in a six months old baby, Brodie's abscess, arteriosclerosis of the vertebral artery and recurrent carcinoma of the lungs following carcinoma of the breast which was removed five years previous.

Dr. G. Werley reported four cases of rheumatism following influenza.

H. H. Varner, Secretary.

PERSONALS AND NEWS

DR. J. N. GHORMLEY, formerly of Wagon Mound, N. M., has moved to Cisco, Texas.

DR. A. A. McDANIEL, formerly of Lovington, N. M., has moved to Reserve, N. M.

DR. L. R. BOOTH, formerly of Grants, N. M., has moved to Hagan, N. M.

DR. A. MATSCHKE is now located at Jerome as one of the assistants to Dr. R. H. Thigpen of the United Verde Hospital.

DR. S. I. BLOOMHARDT, formerly of Philadelphia, Pa., has located in Phoenix, with offices in the Goodrich Building. Dr. Bloomhardt is a graduate of the University of Pennsylvania, class of 1916, and has taken several years of post-graduate training in Philadelphia hospitals.

DR. JOHN WIX THOMAS, of Phoenix, who was seriously ill with pneumonia and sequellae, for several weeks, has finally recovered sufficiently to resume his practice. During his illness his patients were in charge of Dr. A. A. Shelley.

GRANT COUNTY (N. M.) MEDICAL SOCIETY

The regular meeting of the Grant County Medical Society was held at the Officers' Club, Fort Bayard, N. M., on February 27th, with Dr. E. S. Bullock presiding and fifteen members present.

The paper of the evening was read by Dr. Maxim Pollak, of Fort Bayard, on "Emphysema and Tuberculosis." The paper was partly based on post-mortems observed by Dr. Pollak while at the Tu-

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berculosis Hospital in Denver, Colo. The discussion was very interesting and brought out several points which were new to the majority of the doctors present. (Note: This paper is published elsewhere in this issue of *SOUTHWESTERN MEDICINE*.—Ed.)

The paper was discussed by Drs. E. S. Bullock, W. G. Carhart and Bayard Sullivan.

Report was made that Dr. O. J. Westlake, of Silver City, a member of the Grant County Society, and formerly Health Officer of Grant county, is seriously ill at his home in Silver City with tumor of the brain, and with no hopes for his recovery. He has been ill more than a year and visited Johns Hopkins Hospital last spring, where a portion of the tumor was removed. However, the surgeons there told him it would recur and eventually be fatal. The Grant County Society expressed their deep regret at the serious illness of Dr. Westlake.

BAYARD SULLIVAN, Secretary.

ROSWELL, N. M. NEWS

DR. W. T. JOYNER, is in Los Angeles for a few days, having taken a patient there for prolonged sanitarium rest.

DR. O. R. HAYMAKER, has been quite sick for several days with pneumonia but is reported somewhat improved.

It seems difficult for the Chaves County Medical Society to get down to business. Too much social functions and outside attractions.

Active preparations for the annual meeting of the New Mexico Medical Society in Clovis on May 19, 20, and 21, are under way and give promise of a good meeting. Members are earnestly requested to keep these dates in mind and be on hand promptly.

Physicians outside the state are cordially invited to attend this meeting and will be accorded every courtesy.

EL PASO NEWS NOTES

The Board of Directors of the Masonic Hospital, El Paso, Texas, announce the appointment of the following staff for 1925: Drs. F. O. Barrett, J. W. Cathcart, Branch Craige, E. J. Cummins, W. J. Davis, J. H. Gambrell, F. D. Garrett, R. B. Homan, P. E. McChesney, F. P. Miller, R. L. Ramey, J. A. Rawlings, J. M. Richmond, E. B. Rogers, H. H. Stark, H. E. Stevenson, J. W. Tappan, G. N. Thomas, Geo. Turner and Hugh White.

At the meeting of the Medical Staff of the Masonic Hospital, El Paso, February 3, 1925, Dr. H. E. Stevenson was elected chairman; Dr. J. M. Richmond, vice chairman; Dr. E. J. Cummins, secretary; Dr. E. B. Rogers and Dr. Geo. Turner were elected as the efficiency committee.

DR. W. H. ANDERSON announces the removal of his office from 304 American Bank building to 609 North Oregon street, El Paso.

ST. JOSEPH'S HOSPITAL (Phoenix, Ariz.) FEBRUARY STAFF MEETING

This was a well attended meeting, with twenty-seven staff members present. Three cases were discussed, as follows:

CASE ONE

In September, 1924, patient had an ulceration of the vagina, and went to the Mayo Clinic and was treated with radium. The details of this treatment are not known, but apparently the lesion was considered to be malignant as heavy doses of radiation were given, followed by a severe reaction lasting several weeks. When examined here in January, the condition presented the appearance of kraurosis vulvae. There was much induration of the vulvar tissue and a dead white area extending from mons veneris back to and surrounding the anus, with several small ulcers on labia majora and perineum. There was

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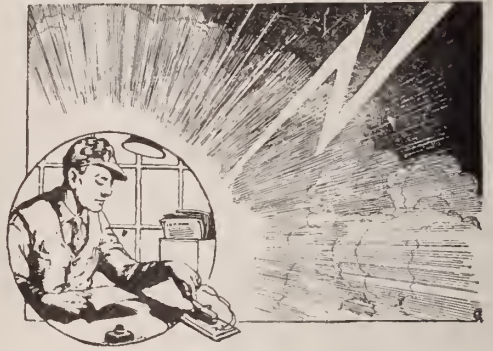
itching, burning and some sharp pain. Realizing the tendency to malignancy of kraurosis vulvæ, the external genitalia were excised in toto.

This patient went into severe shock during the operation and Dr. Carson was asked to discuss the treatment of shock from the standpoint of the anesthetist.

DR. CARSON: Will confine remarks chiefly to the importance of blood pressure observations during anesthesia. (Passed around blanks designed by the National Anesthesia Research Society). One of the things worth noting on this blank is the classification of the circulatory depression into first, second and third degree and the corresponding classification of surgical risks. In all cases in which there is any question about the surgical risk, I have been taking the blood pressure. There is a very definite relation between pulse and blood pressure; if the pulse goes above 10 and the systolic pressure comes below 80 you have what this record calls a third degree shock. This happened in this case, and we asked for some salt solution to be given intravenously, which brings up another point for discussion. There was only 1000 c. c. available, and the ordinary salt solution in the operating room is not suitable for intravenous injection. Another point is that in severe shock, the veins disappear and frequently you have to cut down upon a vein and use a rather large cannula in the vein. Both the surgeon and anesthetist are too busy to do this, and there should always be available in the operating room, salt solution made with double distilled water, and all the material necessary to give it intravenously, as well as some one capable of giving the injection without calling on surgeon or anesthetist for this. I think it would not be a bad idea to have a drill occasionally; cry "wolf" and see how long it would take the operating force to deliver salt solution ready for intravenous injection. If circulatory depression of the third degree exists for thirty minutes without treatment you can almost certainly say that the patient will die within thirty-six hours; if we can act promptly, we may occasionally save a patient's life. In this case, the blood pressure dropped to 50/40, with pulse over 100. She was given 3000 c. c. of salt solution; the first 2000 c.c. brought the pressure up to 74/34, and it did not rise higher with the additional 1000 c.c.; the next morning it was 82/48, and the second day 116/70.

DR. SMITH: The case Dr. Carson has been discussing was one of mine and would like to correct some points in the history. She was a woman of 57 and, as usual with kraurosis, history dates back some years. Had been seen by several physicians with no benefit; finally went to the Mayos and they, for some reason did not use the only effectual treatment, which is excision, but used radium, which resulted in quire a severe reaction. When I saw her, she was nearly crazy with pain. I excised her external genitalia along with the radium burn, and she is gradually healing though still in the hospital. When you remove the entire external genitalia, the patients naturally bleed. The 3000 c.c. of salt solution undoubtedly saved her life. She developed a generalized edema (the fluid does not always pass out through the kidneys), and this lowered the vitality of the tissues, so that for several weeks it was nip and tuck whether the area would heal or slough. It did some of both, but she is now getting well. Kraurosis is a malignant condition and there is no treatment for it except excision.

DR. CLOHESSY: The cause of kraurosis is not known; the pathology consists of an atrophy of the true skin with a fibrosis of the deeper layers; the condition resembles senile atrophy of the skin; why it should be limited to one particular spot, we cannot say. In kraurosis, in addition to the skin



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LOS ANGELES

atrophy, we sometimes get keratotic plaques, similar to those we see in leukoplakia. It is these spots that generally take on the malignancy which Dr. Smith speaks of. In regard to the use of radium, though Dr. Smith does not think much of it, have seen reports of good results following its use, though the old method of treatment is by excision.

CASE II.

DR. SCHWARTZ: This patient came to us December 16th. A young man, 20 years old. Past history of no importance. Three months prior to coming to see us, he noticed that when he would pass cars on the road, he could not see them when they went by. That called attention to his eyes and he was impressed that his vision was not as good as it was before. He went to a doctor, who found that his optic nerves were swollen with tortuous veins. On November 20th, he could count fingers with the right eye and the vision in the left was 20/40. Spinal fluid and blood Wassermann were negative. That was practically his condition when he came to us in December; no headache, no vomiting, no loss in weight, and all external conditions negative. Optic nerve was swollen about 5 or 6 diopters. Left eye vision 9/200, with field contracted to tubular vision; could see the hand with the right eye. No findings in any other cranial nerve or any of the reflexes.

X-ray was made of sinuses, mastoids, optic foramina, and head; sinuses showed some increased density not considered significant. There was a definite enlargement of the pituitary fossa, with signs of intracranial pressure on x-ray films, and interpretation of the findings pointed to tumor in the pituitary region, probably extending beyond the gland itself.

About 5 to 6 days before coming to us he had had a sub-mucous resection. Basal metabolism was low, indicating hypopituitarism; blood sugar was normal.

Choked disc is not usual with pituitary lesions, and indicates general intracranial pressure; tumors pressing on the chiasm usually produce atrophy of the nerve. The diagnostic value of the visual field was destroyed on account of patient being so nearly blind. In considering operation in this case, the usual route would be the transphenoidal, but this did not seem advisable on account of the infection still present in the nose. It was decided to approach the tumor by the frontal route,—Elsberg's operation. This was attempted; considerable blood was lost getting through the skin and when the skull was trephined, hemorrhage was terrific; we had to enlarge the opening rapidly with a chisel and pound in wax and discontinue the operation; the pulse was 140 and blood pressure 60. After giving 1800 c.c. of salt solution, pulse was normal next day and B. P. 110. He pursued a normal course and in about a week, we operated again; this time we raised the bone flap and attempted to see the pituitary region, but the intracranial pressure was so great that the brain was forced into the wound, and operation was again discontinued. A third operation was done under local anesthesia, putting a plate over the brain and sewing the wound up.

In about a week the temperature began to go up, cough developed and consultants diagnosed pneumonia. At the same time he had rigidity of the neck, indefinite Kernig's, spinal fluid show 400 cells, no bacteria, pressure 50. Meningitis was diagnosed. He died on February 1st. No autopsy was done.

DR. YANDELL: Think attempt might have been made to go through the nose, in spite of the infection. Would have treated the infection quite a while, taken out the septum and turbinates, cleaned up the infection, taken out the anterior wall of the sphenoid and gone through.

DR. WATKINS: The x-ray examination of this

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patient (shows film) did not indicate definitely that the lesion was a definite enlargement of the pituitary, so that attempt to reach it through the small opening which would be necessary in the trans-sphenoidal route, offered much more chance of failure than the route chosen. In comparison with that x-ray appearance contrast this (showing another film), where the pituitary fossa is markedly enlarged, the roof of the sphenoid is depressed and tumor is practically bulging downward into the sphenoidal sinus. That sort could be reached through the sphenoid, but the one in the patient under discussion was not so definitely localized.

DR. HARBRIDGE: The size of the sella is interesting; it is usually 8-9 mm. wide and 9-10 mm. deep. Anything over 12mm. in depth would be pathological. The symptoms are curious, and cannot be sure that there is a tumor of the pituitary. Sometimes tumors deeper in the brain will press upon the sella and will give increased pressure. Operations upon such lesions are extremely fatal, even in the hands of the most experienced brain surgeons. Sometimes it is best to do a decompression for relief of pressure and then use radiation (radium or x-ray) up to skin tolerance. The tubular field and choking of the disc are both interesting; most pituitary lesions are slow in development, resulting in atrophy.

DR. O. H. BROWN: In view of the amount of pressure, it was rather unusual not to have had headache.

CASE III.

Twelve days before entering hospital, baby was born, and since then mother has been very ill, with sharp pains around the heart on deep breathing. Abdomen distended, extreme tenderness, purulent lochial discharge. Temp. 193, pulse 140, on entrance. In hospital (November 11th), uterus was curet-

ted gently with dull curette; it was enlarged, non-contracting, with some retained membranes; it was washed out with creolin douche. White count was 17,300, 86% polys. Urine had trace of albumen, with 30-40 pus cells per field (voided). Blood culture negative.

Patient continued to improve slowly, though with septic type of temperature. On November 21st, there was a sinking spell, with rapid pulse and other evidences of collapse. On 22nd abdomen was fluoroscoped, showing coils of small bowel in upper portion and complete density in lower. This density would not shift with position leading to the opinion that it was not fluid.

Operation on 22nd showed serum, clotted blood and foul-smelling inflammatory exudate in several pockets in the abdomen; probably a gallon of this was removed, leaving about as much in, and drains placed in.

Patient left hospital, after some improvement, but is reported to have since died, with necropsy showing general peritonitis.

DR. DRANE: I first saw this case twelve days after a normal confinement, the condition being as stated in history. The interesting thing in the case is the cause of the blood in the abdomen. Operation was done under local anesthesia; after the incision through the wall, the balance of operation was done with the finger. These different kinds of fluids were walled off in different pockets; first was a straw colored serum; then a very white, thick fluid, partly inflammatory; then a thin, dark colored sanguineous fluid.

The history of this patient was that immediately following the birth of the baby, there was no flow or other discharge; the abdomen ballooned immediately after the birth of the baby, and within a few

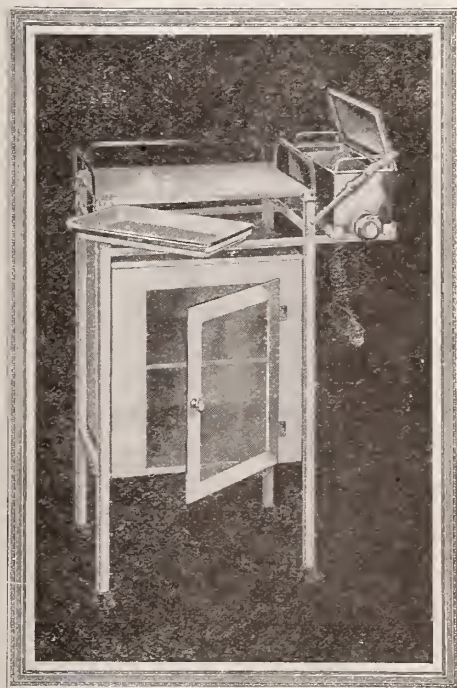
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days she became ill with fever, rapid pulse and prostration.

The interesting question was how the bleeding occurred; from the history obtained, it would seem that she had an ampoule of pituitrin and the thought comes as to whether this blood could have been forced through the tubes into the abdomen.

DR. WYLIE: This patient is a member of a family I have taken care of for more than 30 years, and the history was clearly given to me. Labor was induced with pituitrin and the patient was told there would be no bleeding after the baby came, the attending physician stating that he did not have bleeding after his confinements, on account of the use of pituitrin. The principal question in this case is the use of pituitrin.

DR. MILLS: What were the details of the autopsy?

DR. WYLIE: About everything that was found were the products of inflammation. The intestines were in a small, compact mass; the inflammation had existed for a sufficient length of time for the inflammatory exudate to be thoroughly organized; it would have been impossible to separate the coils of bowel. The uterus was practically normal in size without any evidence whatever of rupture and that is about all that was shown by the post mortem, made as they usually are, after the abdomen had been thoroughly punctured with trocars and filled with intestinal contents and embalming fluid.

DR. SMITH: As I am not mixed up in obstetrics, desire to move that it is the opinion of the staff that physicians desiring to give pituitrin first read the warning printed on every package of pituitrin that it must not be given until the uterus is empty. (Motion not seconded)..

DR. STROUD: In 1912, one of the state board questions was "what is the latest means of tightening up the uterus or assisting labor?" They were talking about pituitrin. Those members of the profession who first start these things, are the first to decry their use; DeLee and other obstetricians who popularized the use of pituitrin, have now gotten away from its use, because of the abuse of it. The midwives of Mexico and Central America use it in large quantities, regardless of the stage of labor. The instructions say that it must not be used until the os is dilated, and yet there have been reports of ruptures and deaths due to its use after the os was dilated. The hustling along of labor is about on par with podalic version and the routine use of high forceps. Sometimes use pituitrin cautiously during the last few pains, when the head is on the perineum.

DR. E. H. BROWN: It has been quite a while since I have taken an obstetrical case, but remember an almost parallel case to this one 1910. Eight or ten days after confinement, the belly was opened, blood clots removed, patient died and they hunted for the cause. At first it was supposed the blood came through the tubes; it was a hard matter to convince some, and they went back and examined the uterus minutely, and they found there had been a rupture of the uterus, with a primary closure of the wound.

DR. BROCKWAY: Am not going to say when to give pituitrin but Dr. Stroud's use is contrary to my experience. I always hesitate to give a dose of pituitrin when the child's head is on the perineum. You cannot gauge the effect of the drug and with the head on the perineum you may get an inordinate effect and sacrifice the soft tissues of the perineum. If the dilatation is complete and the head not yet down the perineum, if you give pituitrin, you can work the child down and have the drug's force expended before the perineum is reached.

DR. MCINTYRE: The dose given should be con-

sidered. Do not think an entire ampoule of pituitrin should ever be given at one time. If examination shows the cervix completely open, the head more than half way through the bony framework, with uterine inertia and the heart weak, I give three minims in preference to using forceps. Anyone who will give an ampoule of pituitrin at one time or before the head is through the bony frame-work is doing wrong.

DR. MILLOY: I have had the experience that small doses of pituitrin may stop labor pains. Recall one case in the hospital, where there was a persistent occiput posterior, and the woman was having pains strong enough to deliver under ordinary conditions, but head would not come down. Gave pituitrin and baby was born dead.

DR. DRANE:—The statement that small doses of pituitrin may stop labor needs support. Have seen doses that did not increase labor, and have seen one patient develop a most intense headache following pituitrin, requiring anesthesia for a time. Have seen two patients go into collapse, just as from an internal hemorrhage, but whose recovery proved otherwise; they were small doses, and think Dr. McIntyre's remarks about dosage is the key to the situation.

Time for adjournment having arrived the remaining cases on the program were postponed until the next meeting.

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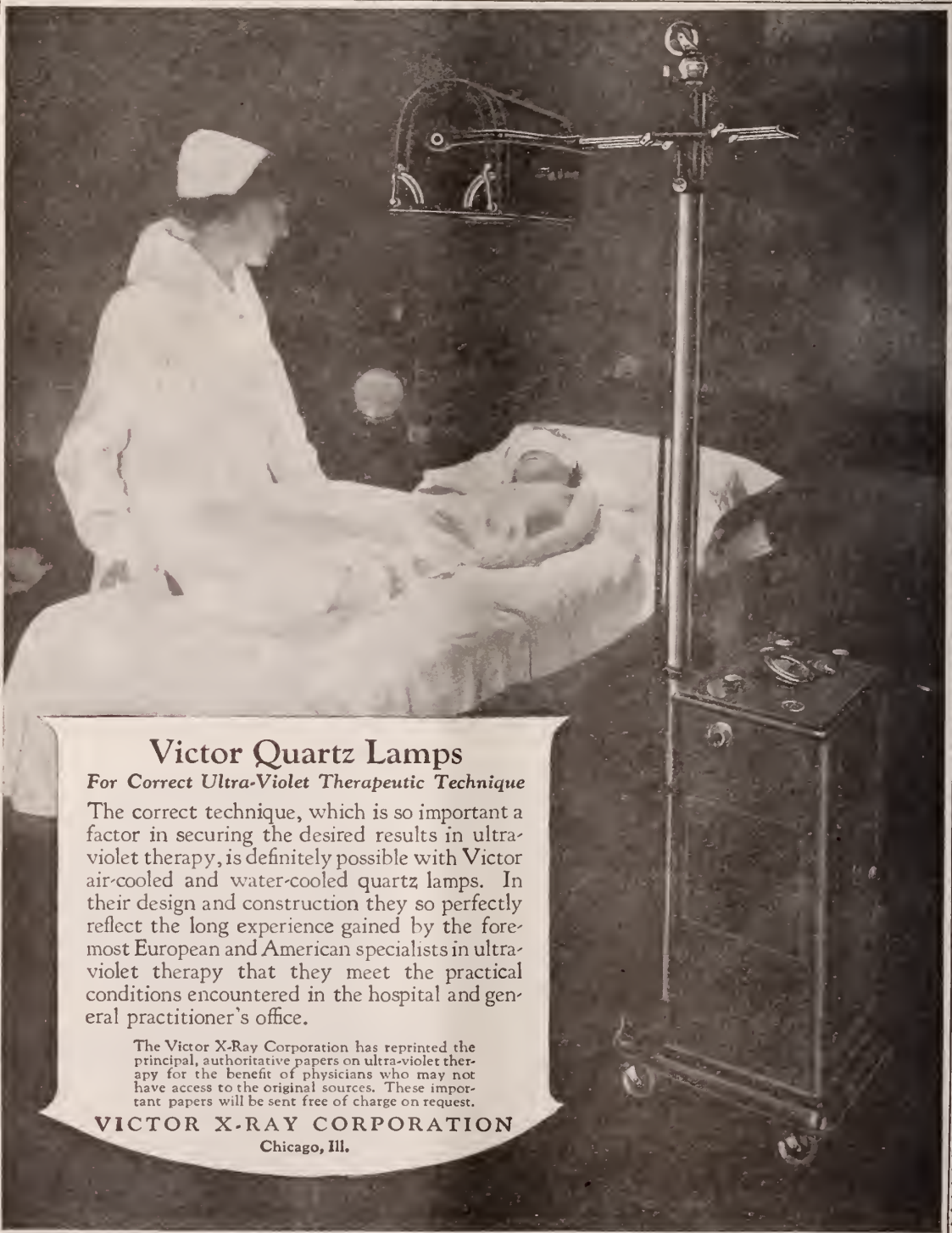
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MEDICAL STAFF OF THE MASONIC HOSPITAL (El Paso)

Meeting of March 10, 1925.

Meeting was called to order at 8 p. m. by Dr. H. E. Stevenson, Chairman of the Staff.

The application of Dr. M. S. Molloy for membership on the Visiting Staff was read and the Staff recommended that Dr. Molloy be elected to the Visiting Staff.

Dr. Turner, as Chairman of the Efficiency Committee, read that committee's report and commented on the histories written. It seemed to be the opinion of the Efficiency Committee that the historian was writing too many histories that are not dictated to her by the doctors in charge of the cases. The Efficiency Committee also was of the opinion that many important facts were being left out of the histories, as it would often be impossible to arrive at the recorded working diagnosis from the histories as recorded. In other words many of the histories as written do not support the working diagnosis. As an example of an incomplete history Dr. Turner reported the following additional data that was not on a chart, which he knew from his personal knowledge of the case. This patient, a woman during the last five months of her pregnancy ran as high as five per cent sugar. She was put on a rigid diet, the sugar practically disappeared, also diacetic acid and acetone disappeared. At Christmas time she ate a good many sweets and upon her entrance into the hospital was in a semi-comatose condition. At this time she was given insulin and again the sugar, diacetic acid and acetone disappeared and she had a normal delivery.

Eleven incomplete histories were discussed and the following were referred to the Superintendent of the Hospital and Chairman of the Board of Directors: Charts number 2340 which showed no tissue or blood examinations; 2811 which showed that an autopsy had been made, but the findings had not been recorded; 2929 which had the autopsy findings recorded but unsigned.

The Secretary read a communication from Dr. E. B. Rogers asking that his resignation from the Efficiency Committee be accepted on account of lack of available time. Motion was made that Dr. Rogers reconsider his resignation. Motion was seconded and carried. Dr. Rogers agreed to serve at least another month.

The Efficiency Committee presented a plan simplifying the checking of histories and a method on ifying the doctors when their charts were incomplete and the nature of the deficiency. It was moved that the Committee bring some definite report and suggestions concerning the proposed method, the report to be presented at the next Staff meeting. Motion was seconded and carried.

The following members of the Medical Staff were present: Drs. Stevenson, Miller, Garrett, Cathcart, Rogers, White, Turner and Cummins.

E. J. CUMMINS, M. D.,
Secretary of Staff.

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Literature on request to The Abbott Laboratories, Chicago.

DR. JEROME TRILOLO, formerly located at McNary, Ariz., has moved to El Paso, where he will be associated with Dr. Hugh Crouse, with offices in the Roberts-Banner Building.

DR. HUGH CROUSE, of El Paso, announces the establishment, in connection with his offices, of an Electrocardiographic, Polygraphic, Metabolic and Protein Laboratory. This will be under the technical direction of Mr. J. C. Wallach who, for the past three years, has had charge of a similar laboratory in one of the large United States Veterans' Bureau Hospitals. The establishment of an Electrocardiographic Laboratory in El Paso should be of interest to the medical profession of the Southwest.

DR. JOHN P. COGLEY, of Council Bluffs, Ia., is visiting in Phoenix, with the intention of locating in Arizona, preferably in the Salt River Valley, since Mrs. Cogley is here for her health.

DR. B. M. RICHARDSON has located in Nogales, where he is practicing the specialty of Eye, Ear, Nose and Throat.

DR. F. S. SPEARMAN, formerly in the Indian Service in Arizona, has returned to this state and

is with the United States Veterans' Bureau in Phoenix.

DR. JAMES S. PERKINS, physician at large of the United States Indian Service is in Phoenix, recuperating from an illness of some two months' standing.

DR. WM. O. SWEET, of Phoenix, Secretary of the State Board of Medical Examiners, attended the annual Conference of the Council on Medical Education and Licensure, of the American Medical Association, in Chicago, March 10th to 13th. He will report some of the suggestions received there to the House of Delegates of the Arizona State Medical Association in Bisbee.

Several members of the staff of the Veterans Bureau Hospital at FORT BAYARD, N. M., have recently been transferred; among them are DR. ALBERT MARTIN, who is located at Camp Kearney, Calif.; DR. J. J. BALLOU, who is at Campbell Court Hotel, Portland, Ore.; DR. FRANK B. BREWER, to the Veterans Bureau Hospital at Boise, Idaho; DR. WM. E. HAMLIN, to the Veterans Bureau Hospital No. 88, at Memphis, Tenn.

ACTION OF ALCOHOL ON THE HUMAN ORGANISM

In the Annals of Clinical Medicine for December, 1924, the Report of the Advisory Scientific Committee upon the Physiological Action of Alcohol, of the National Research Council of Great Britain, is abstracted.

That part of the report which treats of "Alcohol as a Medicine" is worthy of consideration, according to this abstract, dealing, as it does, solely with the physiological facts, without regard to any other factors.

The value of alcohol as a drug or food must depend upon some one of those physiological actions for which clear evidence has been found—its *narcotic* action on the brain and nervous system; its *dilating* action on the cutaneous blood-vessels; its *carminative* action on the movements of the alimentary canal; its action as a readily available *food*.

1. Its main value is due to its narcotic action, by which it allays excitement and distress, and induces rest and comfort, thereby indirectly ameliorating other symptoms.

When the recovery of a patient is being delayed by anxiety and worry, and his progress will be influenced favorably by being made to feel less anxious and more confident, alcohol will have a definite therapeutic value, although without any effect upon the course of the disease. Obviously, like any drug, it should be prescribed with care and judgment and not administered at the discretion of patient or friends.

2. Its carminative action on the alimentary tract is similar to that of other mild irritants, like peppermint, cloves, etc., and in view of its associated narcotic effects cannot be recommended for carminative effects, when so many simpler remedies are available.

3. By diverting blood from the internal organs to the surface, it has an adjuvant action to the application of external warmth in warding off or abating the effects of the common catarrhal infection known as a "chill."

4. Its limited food value may become important in association with its narcotic action under conditions in which ordinary nourishment cannot be taken.

The therapeutic value of alcohol, as based on scientific facts, lies in a very much restricted field and is infinitely smaller than the popular belief would have it. There are popular illusions regarding alcohol which are positively dangerous. One of these illusions is that it has an important stimulant ac-

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tion on the heart, respiration and vital activities in general. Rational medicine has long since abandoned this belief, but it still lingers in popular practice. The supposition that alcohol stimulates the action of a failing heart has no basis in ascertained facts.

The personnel of this committee included a long list of eminent pharmacologists, physiologists and medical practitioners of Great Britain.

WANTED—Medical appointments for class A physicians. The credentials of all applicants have been thoroughly investigated. Complete biographies are available to employers. Information covering vacancies is submitted to only those who meet the requirements. Applicants are registered from every part of the country; hence, in most cases personal interviews can be arranged conveniently. No charge to employers for the introduction of candidates. The Medical Bureau, 824 Marshall Field Annex, Chicago.

EL PASO COUNTY MEDICAL SOCIETY

MARCH 2nd.

Dr. H. L. Ramey read a paper, "The Importance of Careful Diagnoses in Abdominal Cases." Dr. Ramey brought out in his paper the importance of making a thorough examination in cases that present obscure train of abdominal symptoms. He thinks these cases are often subject to unnecessary operation before they are studied and diagnoses of the case has been made, resulting in these cases in showing up after a few months with the identical symptoms they had before operation. Dr. Ramey showed lantern slides of x-ray pictures illustrating cases in which such mistakes have been made. Three of these were cases of gall stones, two stones in kidney, ureter or bladder.

Dr. Ramey's paper brought out considerable discussion by the Society relative to thorough history, physical examination and diagnoses in these cases before any operative procedures are undertaken. Discussed by Drs. W. L. Brown, F. D. Garrett, J. W. Cathcart, E. J. Cummins, J. W. Laws, G. Werley, W. W. Waite and P. R. Casellas.

Dr. R. G. Werley, member of the Board of the County-City Hospital, thinks that the appointment of the Staff for the County-City Hospital should include the appointment of a responsible head in each department, so the Hospital Board will know who to hold responsible in the different departments. Dr. Crouse reports that examination questions have been received from various men throughout the country, and he thinks that Staff appointments should be made by examination. Dr. Crouse discussed various other details relative to the County City Hospital plans.

DR. HARRY LEIGH showed a case of marked exophthalmos in a Mexican girl seven years of age. There are seven children in the family, all healthy and well. This condition has existed from birth. Heart, lungs and general physical examination negative, except for high arched palate. X-ray picture shows a thin skull and the orbits appear to be shallower than normal. Dr. Leigh only saw this case yesterday, and has not reached any conclusion as to diagnosis.

DR. J. W. CATHCART showed three cases of oral carcinoma.

"Case No. 1, male, age 46, rancher. August, 1924, noticed inflammatory nodule in the fold of the cheek, opposite left third molar. The lesion has gradually progressed until at the present time it is breaking through the surface of the cheek externally and shows numerous metastatic nodules in the adjoining skin area."

"Case No. 2, male, age 57, butcher. Seventeen

months ago noticed small pimple on the dorsal surface of the tongue on the left side about two-thirds of the way back. This broke down, was treated at Scott-White Clinic, Temple, Texas, with radiation and healed up. Again broke down several months later when he took Abrams' treatment for four months. At first he felt he was getting results but later decided that things were getting worse."

"Case No. 3, male, age 63, machinist. December 10th, last year, thought he had a cold in his throat. Had bad pyorrhea and teeth were removed at that time, but throat condition still persisted. Now has well defined nodular tumor, involving left side of uvula and anterior pillar of pharynx."

Treatment in all of the above cases has been by radiation, both radium and x-ray being used. In the first two cases only palliative results are anticipated. It is hoped in the third case that by inserting radium needles into the tumor and blocking the deep lymphatics with radiation, that permanent relief will be secured and it is hoped that we will be able to show this case at a later time.

DR. W. R. JAMIESON reported a case of kink in the ureter in a woman 32 years of age. This case was one that had several diagnoses and at least one operation but her symptoms had never been relieved. This case had some of the usual symptoms and also pain one inch to the right of umbilicus. The localizing of pain at this point Dr. Jamieson thinks is characteristic in these cases. This case was treated by dilating the ureter with injection of 12% sodium iodide solution. Dr. Jamieson thinks this causes less irritation than the 20% solution. He thinks these cases with somewhat indefinite symptoms should be studied carefully and catheterization of the ureter should not be overlooked.

DR. BRANCH CRAIGE reported three cases of coeliac disease.

"These three children were treated at first by the old prescribed method of fat and starch free diets with soda enemas and occasional doses of castor oil. The diet consisted of the various protein milks, lactic acid milk, buttermilk, cottage cheese, gelatine, beef juice, beef broth, scraped beef and orange juice. One child could take very little milk of any kind and one tablespoonful of farina caused 104 fever. Another could take little more than well diluted Dryco. The third seemed to vomit everything and I was afraid would succumb to starvation."

"In October, 1924, I read an article by Dr. Haas of New York in which he said he had found success in feeding coeliac cases thoroughly ripe bananas. He stated that a yellow banana is a carbohydrate but that a banana with black specks on the peel is a succrose. He advised beating up the banana into the consistency of mayonnaise dressing. The first day I fed about one half banana and temperature went up to 101. I kept increasing the amount and found the stools soon improved and the babies got better. I continued with the protein diet, soda enemas and occasional castor oil, with bananas, until one child is now taking from 12 to 14 bananas daily."

"These children are all about 2 to 2½ years old. When they came in last fall they weighed about 17 pounds each. One went down to 15. They are normal weight now for their ages, with splendid color, firm flesh and joyful, happy dispositions."

"Two years ago I treated two other cases of coeliac disease by the old method. They both finally developed into normal children, but after at least a year of disappointments and discouragements."

Discussion by Drs. Werley, Leigh and Casellas.
(Continued in next issue)



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VOLUME IX

MAY, 1925

No. 5

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NEW MEXICO MEDICAL SOCIETY
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
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FOR TABLE OF CONTENTS—SEE ADVERTISING SECTION PAGE 1

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PRESIDENT'S ADDRESS

Arizona State Medical Association, Thirty-fourth Annual Meeting,
Bisbee, Arizona, April 16 to 18, 1925.

DR. R. D. KENNEDY, M. D., F. A. C. S., Globe, Arizona

Intelligence is the capacity of the mind. It is inherited. It is transmitted to posterity through the germ plasm.

Knowledge consists of the facts stored in that brain. Other things being equal the amount of knowledge possessed by an individual depends on the brain capacity that was there to start with.

During the war intelligence tests were administered to 1,700,000 officers and men. Great care was taken to eliminate environmental factors, such as lack of education, ignorance of the English language, etc. They were graded into eight classes consisting of:

(1) Very superior intelligence, which gave $4\frac{1}{2}\%$ of a mental age of 18 to 19; (2) Superior intelligence, which gave 9% of a mental age of 16 to 17; (3) High average intelligence which gave $16\frac{1}{2}\%$ of a mental age of 15; (4) Average intelligence, which gave 25% of a mental age of 13 to 14; (5) Low average intelligence, which gave 20% of a mental age of 12; (6) Inferior intelligence, which gave 15% of a mental age of 11; (7) Very inferior intelligence, which gave 10% of a mental age of 10; (8) Unteachable. By this it will be seen that only 55% of the men graded up to average intelligence; assuming that this was a fair average of our entire population (and there is every reason to believe it was) this means that only a little over half of our population have the intelligence of a thirteen year old child or above. The remaining 45% have the right of franchise and their votes count as much at the polls as their superior brother. This will possibly account for some of the defects in our present government.

What is the prospect of the future? No one knows better than the members of the medical profession that the families of parents of high intelligence are, as a rule, small while those of low intelligence are large.

In the past, infant mortality among people of low intelligence was very high, but through the teachings of the medical profession, charitable and governmental organizations have been interested and through their efforts, infant mortality among this class has been largely overcome.

Through these same organizations, the inefficient, the physical, mental and moral cripples are carefully preserved at public expense. The criminal is turned out on parole after a short time to reproduce his kind. The same with the insane which are discharged as cured. Large sums of money are expended on the attempted education of the feeble minded, often at the expense of his normal brother and sister. This is an attempt to violate nature's law of the survival of the fittest and if persisted in and no efforts made in some other manner to counteract its effects, it is doomed to failure for these people must be cared for. If, on top of the ordinary machinery for running the government, we add the machinery necessary for regulating capital and industry, the railroads, for old age pension, widow's pensions, child welfare, for prohibiting the use of morphine, cocaine, alcohol, and other things that one part of our population thinks the other part should not do, and add again to this the machinery necessary for socialized nursing, medical care, the taking over of obstetrics, the care of the injured, crippled and defectives—when these activities have developed to a

certain extent, the burden will become too great and our social fabric will give way. There will not be enough of our population left in productive industry to maintain the rest. Even today there is one government employee for every twenty adults in the United States.

To what extent has the medical profession been responsible for this? It has been largely through their efforts that many of these charitable and governmental agencies have been brought into being and because of this fact we should give more study to the matter and attempt to find some solution that will keep our social fabric from cracking under the load. Curbing the propagation of the unfit cannot be done by teaching birth control, as those most inter-

ested in this question are now ready to admit it is a failure, particularly among the very people whose numbers should be limited as they have not the intelligence to profit by the teaching.

Legislation compelling every applicant for a marriage license to pass an intelligence test of a certain grade might do something toward remedying this evil, and in case they do not come up to the necessary requirements permission to marry be denied them unless they submit to an operation which will render them unable to propagate their kind. Then make illegitimacy punishable in such a way to act as a deterrent. Such legislation as this is probably a matter for the future as it will require a great deal of teaching of the public before they will see the necessity of it.

Some Obstinate Cases of Chronic Diarrhea Due to Infection of the Duodenum by *Giardia Intestinalis*

By F. D. GARRETT, M. D., El Paso, Texas

(Read before the Tenth Annual Meeting of the Medical & Surgical Association of the Southwest, held at Phoenix, Arizona, November 6 to 8, 1924)

One of the results of the study of the duodenal fluid has been the discovery that infection of the duodenum with *Giardia Enterica* or *Lamblia Intestinalis* is not uncommon. Prior to the use of the duodenal tube this flagellate was found only in cases with marked diarrhea. Several early observers noted and described the parasite as found in the stool.

The *Giardia Enterica*, 10 to 20 mm. by 6 to 10 mm., is pear shaped and the length of the body is about twice its greatest breadth.

Looking at the parasite laterally it resembles in shape the reverse bowl of a spoon. This aspect of the parasite is characteristic in the differentiation. (Fig. 1)

On the anterior ventral surface is found the mouth or sucker, and being bi-lobed it gives the parasite a shark-like appearance. There are eight flagella attached. For practical purposes the shape, size, double mouth, or sucker, the reverse spoon appearance, and the active motility are sufficient for identification. (Fig. 2)

The parasites readily attach themselves by their double mouths or suckers to the epithelial cells of the duodenum. It is thought that the gripping action of the suckers on the surface of the epithelium of the duodenum and the ceaseless motion of the flagella in immense numbers produce irritation of the mucosa.

The double contoured wall of the giardia cyst containing two to four nuclei with the curved lines of the exostyles and parabasals are characteristic, and, to the practiced observer, sufficient for diagnosis, (Fig. 3). A double iodine-eosin or other stain is necessary to bring out the details of the cysts, especially if the patient has been under treatment. Repeated examinations under favorable conditions will always reveal them, when the parasite is present.

Mueller, in 1889, did an autopsy immediately after the death of his patient and found the duodenal mucosa almost covered with a continuous sheet of these flagellates.

Daniels and Newman of the London School of Tropical Medicine, in their "Laboratory Studies of Tropical Medicine," 3rd edition, 1911, say "This parasite is probably pathogenic. The symptoms are chronic diarrhea with abundant mucus, often bile stained and frequently mixed with feces and sometimes with blood."

Manson-Bahr, in their work, "Tropical Diseases," 7th edition, 1923, say, "*Lamblia* (giardia) infections are especially intractable and may persist for years. Many kinds of treatment have been tried without success." Further they say, "A note of warning should be sounded against regarding giardia as a cause of disease. Many persons harbor the disease without any inconvenience and several authorities regard it as merely concomitant."



Fig. 1.

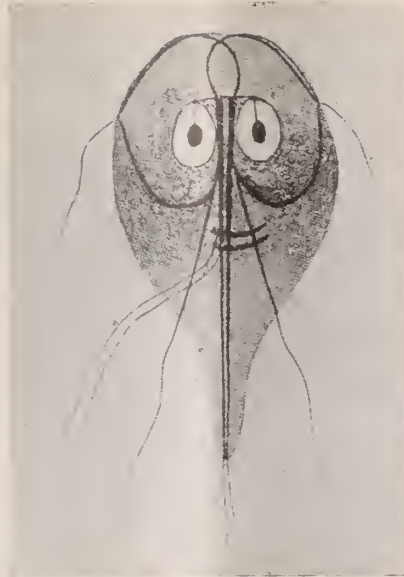


Fig. 2

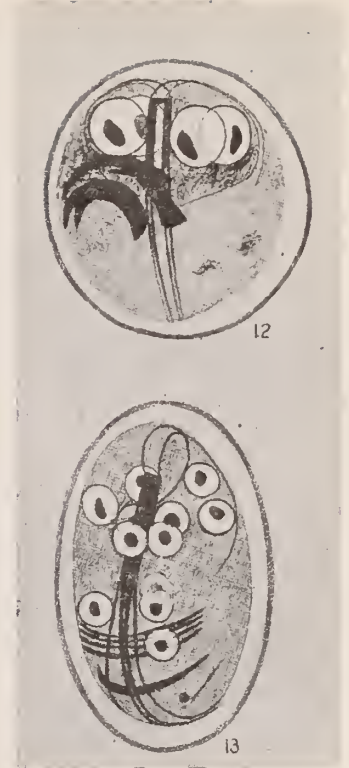


Fig. 3

R. Deschines, of Paris, in a recent paper, produces convincing evidence of the pathogenicity of giardia infection. He inoculated the intestinal tract of 100 healthy cats with giardia of infected stools and produced diarrhea in 96% of cases. Seventy-three of the animals died from the infection. All autopsies showed inflammatory lesions, both erosive and necrotic. The lesions were especially marked in the small intestine. Control animals inoculated from non-giardia infected stools remained healthy.

Deschines reports a case which was brought to the hospital on account of a localized peritonitis which seemed to be due to perforation of an ulcer in the small bowel. The man recovered after surgical intervention but six months later developed intestinal obstruction from which he died. An autopsy showed "the peritoneal cavity filled with a milky fluid containing the giardia enterica. The small intestine was ulcerated. The cecum, ascending colon, and transverse colon were sclerosed. The large intestine offered a succession of dilatations and contractions due to scar tissue. Serial sections of the ulcerated bowel showed vegetative forms and cysts of the giardia enterica in the different layers of the bowel wall."

An idea of the frequency of giardia infection is to be had from the number of infections occurring in large groups of patients. In Debarkation Hospital No. 3, New York City, in 1919-20, Kofoid, Kornhauser, and Platt found 131 cases of infection among 2300 soldiers or about 5.7%. In 576 home service men they found 37 infections or 6.4%.

Logan and Sanford at the Mayo clinic in

1917, reported 66 cases of infection or 1% in 6000 cases.

Stiles, in 1915, made a survey of the prevalence of parasitic infections in school children from the ages of 6 to 17 years. Of the 672 boys examined, 13% were infected with giardia enterica. Of the 615 girls examined, 8% were infected. Of the adult whites, 776 were examined and 12.8% found infected; of 511 negroes examined, 6.5% were found infected. In the white children from sewer homes the infection was 12%, in comparison with 15% coming from homes with a privy.

Matthews and Smith of the Liverpool School of Tropical Medicine, showed that in 4068 cases of dysentery 669 were infected by giardia intestinalis, or about 16%. The same observers reported that of 520 children between the ages of one and twelve years who were non-intestinal hospital cases, about 14.3% were infected.

In a series of 200 routine cases with gastrointestinal symptoms whom I examined by duodenal intubation, I found four cases of infection with giardia intestinalis or about 2%. Of the same number there were 28 patients infected with cercomonads and trichomonads or about 14%.

Of the cases herewith reported all had gastrointestinal symptoms. Cases 1, 2 and 4 had diarrhea of long standing. Case 3

book of nutritional diets with recipes will be had obscure gastrointestinal symptoms but no diarrhea.

Case No. 1: Age 58. Had an almost constant diarrhea for some three years, having from six to 20 stools a day. The stools were liquid and there was no tenesmus. He had been steadily losing weight for several months. The blood was normal except for a moderate secondary anemia. Urine was normal. Examinations of the stomach contents showed absence of free HCL. Fluoroscopic examination of gastrointestinal tract was negative. Examination of the duodenal contents showed great numbers of motile giardia intestinalis. The stool was alkaline in reaction and contained numerous ammonium phosphate crystals. No occult blood, no parasites, ova, or cysts were found in the stool. This patient was put on diet and given hydrochloric acid to help his digestion and an effort was made to clear up the giardia infection by transduodenal lavage with methylene blue and acriflavin alternating with hypertonic saline solution. Under this treatment the diarrhea and general condition improved, but at the end of two or three weeks, when he returned home, the parasites seemed as numerous as ever. During the past two and a half years I have had written reports that his health is better, but have had no opportunity to learn whether or not he is free of parasites.

Case No. 2: Mr. H. H. H. Age 51. Chief complaint was diarrhea of six years standing. There were two to five loose movements daily. This man was rather well nourished but lacking in endurance and complained a great deal of peristaltic unrest and a feeling of fullness in the abdomen. At times there was slight pain in the lower right abdomen. Blood pressure 90/70. Hemoglobin 90%. Urine normal. Stomach contents showed gastric acidity normal during the first hour. At the end of two hours free acid was 70, total acid 95. Motility of the stomach was poor. There were numerous encysted parasites in the stool. The duodenal contents contained abundant giardia, especially after stimulation of the mucosa with 33% magnesium sulphate solution.

In this case the man had an almost constant diarrhea of long duration. Aside from the disturbance of the motility the stomach seemed normal. I was never able to find any cause for the diarrhea except the giardia infection. Treatment was given over a period of several months, more or less intermittently and included several 50 grain doses of thymol, and 5 grain doses of calomel followed by a saline, and transduodenal lavage with 1-6000 methylene blue, 1-6000 acriflavin, 0.6 neo-salvarsan in 250 cc. hypertonic saline. Stimulation of the duodenal mucosa by the Moeltzer-Lyon method gave evidence of a mild chronic cholecystitis. At times the parasites would disappear and the general condition improve, but after a short interval the parasites always returned.

There was a question as to whether the gall bladder and bile ducts were not infected with the parasites. Removal of the gall bladder in rebellious cases had been advocated by Bassler of New York, Smithies of Chicago, and Lyon of Philadelphia. Cholecystectomy and appendectomy was done by Dr. J. R. Cummins. The appendix was long, lying post cecal, and adherent at its tip low in the pelvis. The gall bladder was distended. Dr. Waite, the pathologist, reported cholecystitis present.

Mr. H. was re-examined some six weeks after his operation and found still to have a heavy infection with giardia. There was some diarrhea and he was not able to begin work. He was put

on 50 grain doses of thymol once a week and transduodenal lavage of 1-3000 neutral acriflavin in hypertonic saline. At the same time he was given daily 90 grains of sulphur at bedtime. On this routine the parasites disappeared from the duodenal contents within a few weeks. At the present time, four months after operation, and 15 months after he first came under observation, the patient is working and feels better than he has for many years.

(Case No. 3: Mr. E. A. W., Parral, Mexico. Office employee of mining company. Age 24. Complained of intestinal distress and nervousness after meals; considerable bloating relieved by belching; constipation; at times distress in epigastrium. Bowels had always been regular until 1½ years ago, when the present illness began. A year ago he had an appendectomy, but was not relieved of his distress. Some two weeks after the appendectomy he had a diarrhea lasting a few days. The bowels had usually been rather constipated.

Physical Findings: Weight 132, which was a few pounds below average. Hemoglobin 90%. Blood pressure 94/55. Heart and lungs normal. There was no evidence of disease in the abdomen. Fractional examination of the stomach contents showed very low acidity. Duodenal contents contained very numerous giardia. The bile obtained after the Moelzer-Lyon method showed no signs of disease of the biliary tract. Fluoroscopic examination of the gastrointestinal tract was negative. This patient returned to his home and carried out the routine used in treating Mr. H. He is reported to be well now, some 10 months after treatment.

Case No 4: Mr. C. I. B. Brickmason. Age 41. Complained of pain and distress in the abdomen, and diarrhea. The present trouble began about six years ago and has become more marked each summer. Present weight 140, weight at beginning of illness 160. Height 5 ft. 11 in. Typhoid fever at age of 15. Pneumonia in 1917. Influenza in 1918. Appetite very irregular. Headaches nearly every day and backache all the time, when he tries to work. For several years has felt tired most of the time. Patient had noticed that it made little difference what sort of food he ate. Felt a sense of weight in the stomach and bloating after meals. Was nauseated at times and sometimes vomited his breakfast.

Physical Findings: Blood pressure 118/60. Hemoglobin 80%. Teeth were poorly kept. Urine negative. Gastrointestinal x-ray examination negative. There was rather marked tenderness over the right and left upper abdomen. The stool showed a rather heavy infection with cercomonads and trichomonads but no giardia were found in the stools and no giardia cysts noted. Examination of the duodenal contents showed heavy infection with giardia enterica. This patient has been under treatment for two months, and at the present time only rare sluggish giardia can be found in the duodenal contents.

Treatment has consisted of transduodenal lavage following a 50 grain dose of thymol once a week. He has also been given neo-salvarsan intravenously 0.3 gram weekly; and 90 grains of sulphur once a day. The infection promises to clear up entirely. Patient is feeling much better and is able to work.

CONCLUSIONS

Duodenal drainage is the most certain method of discovering infection of giardia enterica; but one familiar with the appearance of the cysts can usually recognize the infection by finding them in the stool.

Giardia may at times be harmless comensals just as the ameba histolytica, but they are cause of disease in man, and under favorable conditions, highly pathogenic.

The treatment should be carefully checked by examination of the duodenal contents. Parasitides harmless to the patient can be used. Salvarsan and sulphur are the most important. The treatment must be persistently carried out for several months to effect a cure.

DISCUSSION

DR. H. B. GUDGEL, (Phoenix, Ariz.): This disease under consideration is one that has not come to many of us, probably for two reasons,—one just mentioned, that we fail to recognize it, and second we may be a little careless in our examinations. The history of this disease is that it is one that has come to us from the tropics, and we have not paid much attention to it. The doctor's studies of the subject have brought it to us here in the Southwest, and it evidently covers quite a bit of our whole country. It seems to have a predilection for young adults, with the males a little bit in preponderance.

Matthews and Smith, the English authorities, state that in advanced age the disease seems to die out. Their studies are those that follow along in 1920, after the return of the soldiers from the war.

The location of the area of the disease is so high up in the intestinal tract that if we depend entirely upon the cysts being found in the stools for diagnosis it would explain one of the reasons why we so often fail.

The doctor's duodenal test is far superior to the one usually used, and no doubt it is the only way to make the proper early diagnosis.

I am rather wondering why it would not be possible for these germs to ascend into the stomach, or even into the lungs, inasmuch as in cases of ulceration of the stomach, it is frequently rendered alkaline by treatment, and the doctor's paper suggests that the intestinal tract is alkaline in this disease. A peculiarity of the disease is that it often produces no symptoms, or those only of slight constipation followed by slight diarrhea, and after they get through with the constipation followed by the diar-

rhea, occasionally we find the cysts. A mixed infection usually brings forward a finding of the flagella, as in typhoid fever, and a careful examination was made of the stools, when they were found. I suppose his experience as well as that of others is that we have a mixed infection before the disease shows, and that it is because of the mixed infection that we find it in the stools. It appears to me that it is not impossible that this may be only one of a group of factors in diarrhea which cooperates to produce it, yet there are instances where you find no other infection except this, as we will have to lay the diarrhea entirely to the presence of the cysts.

And what about the mode of infection. Carriers, most frequently, and food, and water, and also the fly. It is stated that these cysts will live in the intestine of the fly 30 hours; if that is true, this is probably one of the modes of infection.

DR. S. H. WATSON, Tucson: I would like to ask the doctor two questions,—did any of his patients have mixed symptoms, and did he try giving them large doses of salvarsan?

My attention was called to this several years ago by some fellows over on the coast, and I have seen two or three cases. If you give these cases .9 gm. first testing the patient out with .1 gm., you get fine results. But of course there are very few cases. I would like to know if he ever tried this.

DR. F. D. GARRETT, El Paso, (Closing): As to finding these germs in different parts of the body, I have examined the stomach but have never found them; they do not migrate upward but do migrate downward; they have even been found on the walls of the large intestines, and then of course they are rushed downward by the peristaltic movement in diarrhea. I have never found them in other parts of the body.

As the arthritis, I recall a case reported in a clinic sometime last year that was the only case in which it was claimed that the giardia was the cause of it. In that case the gall bladder was infected, and perhaps that infection was the cause of it. None of the cases I knew had arthritis.

As to giving large doses of salvarsan, it has been such a comparatively harmless disease that I have not felt like giving powerful doses of salvarsan, and have merely felt my way with the small doses. Dr. Watson may be right, and large doses may be better, and perhaps they would not do any harm, but I have never tried them.

THE ESSENTIALS OF THE DIAGNOSIS AND TREATMENT OF SYPHILIS*

I. C. SUTTON, M. D., Hollywood, Cal.

*Read before the Maricopa Medical Society, February 21, 1925.

It would be impossible to thoroughly discuss in one evening the diagnosis and treatment of syphilis. We can, however, outline and describe the various methods of diagnosis, and stress the important points in its management.

The first essential in the diagnosis of syphilis is a suspicious mind on the part of the examiner. He should be quick to suspect syphilis, but slow to diagnose it. In every genital lesion and in every vague medical case the possibility of syphilis should be considered, for it has been said that syphilis is as common in medicine as pus in surgery. It is an objective disease

and therefore the history, which is always subjective, may be actually misleading. Never bluntly ask a patient if he has had syphilis. He may answer "yes" because he has had a chancroid, or "no" because the initial lesion was diagnosed as herpes and the cutaneous manifestations as eczema. The presenting complaint, as stressed by Cabot, may be a broken nose or a sore foot and give no clue whatever to the underlying infection. As high as 60 per cent of the worst cases of cardiovascular and neurologic involvement give no history of secondaries. Probably 60 per cent of the general run of syphilitics have

not had a diagnosis of syphilis because of the over-reliance of the internist on his "history-taking instinct."

While no sane man would deny the value of the Wassermann test as an aid to diagnosis, too much weight is given to a negative reaction. Aside from an occasional case of leprosy in southern California, a false positive reaction is rarely obtained. This is in line with the trend of modern belief that in this country a positive reaction nearly always means syphilis. In the interpretation of a negative reaction, it is well to remember that spirochetes have been found and cultured from lesions about the genitalia and mouth in patients with negative Wassermann reactions, and that if syphilis is present other signs will be found. The text-book injunction to search for other signs of syphilis means precisely this: A complete physical examination, which any general practitioner is capable of making, a host of special examinations and procedures, and a thorough laboratory survey. These have been summarized by my former chief, Dr. John Stokes, as follows:

Intensive study of the anamnesis;

Social estimation of the case;

Study of the family, both in history and examination;

The serum-Wassermann reaction (single antigen);

Modifications and intensifications of the serum-Wassermann test, such as the provocative, cold fixations, multiple antigens and Wassermann series.

Examinations of the cerebrospinal fluid (two Wassermann tests, Nonne, cell count on the fresh fluid, colloidal gold test);

Darkfield examination and stains of fresh secretions;

The luetin test;

The Levaditi and other tissue stains;

Neurologic examination;

Eye examination;

Ear examination;

Nose and throat examination;

Thorough dermatological examination of skin and mucous membranes;

Visceropathic studies of the liver, spleen and stomach, involving the study of the anemias, blood dyscrasias, test meals, esophagoscopy, x-ray examinations, etc.

Special cardiovascular examination, including physical findings, blood pressure, electrocardiographic examination, etc.;

Roentgenologic examination;

Exploratory operative procedures;

Genito-urinary examinations, functional, cystoscopic, and prostatic;

The therapeutic test;

Last of all, necropsy.

It would be out of place to discuss the various Wassermann and precipitation tests here, but it should be remembered that a conservative multiple antigen test is of the most value to the clinician. In the face of inconsistent and conflicting laboratory reports, more reliance should be placed on the clinical findings. Oftentimes a searching re-examination will plow up unsuspected signs of syphilis. Several of the special procedures should be more often used by the general practitioner. The provocative Wassermann test has increased the percentage of positive reactions 20 per cent. The darkfield examination is of the greatest value in prompt diagnosis of chancre and secondaries. Examination of the spinal fluid often reveals changes which would not yet be detected by the neurologic examination which is, after all, a search for scars in the central nervous system. A complete examination of the spinal fluid should include a cell count, gold sol or colloidal benzoin curves, protein estimation, and a Wassermann test in varying dilutions.

The polysymptomatic character of syphilis makes its diagnosis easier. Thus, a patient may present a few vague signs of tabes with obvious signs of aortitis which aid in the diagnosis of the underlying syphilis. Twenty-one cases of Wassermann-fast syphilis have been summarized and it was found that:

The osseous system was involved in.....19

Lymphatic glands in.....17

Cardiovascular system in.....13

Skin and mucous membranes.....11

Central nervous system.....10

Gastro-intestinal tract 4

Every general diagnostician should have more than a smattering of knowledge about cutaneous syphilis. Time after time palmar syphilis has been passed over as eczema because the examiner failed to realize that a combination of induration, crescentic configuration and peripheral extension with central atrophy spells syphilis. The examiner should feel a "wave of suspicion" roll over him when he sees a circinate, cigaret-paper scar with pigmented borders, or an indolent lesion on the finger, nipple or face which has not healed in three weeks. Failure to look in the mouth or about the rectum accounts for the scarcity of diagnoses of recurrent solitary early and late lesions.

The diagnosis of syphilis will be more common when we realize that it is a disease which attacks at least 10 per cent of the ailing and affects every organ in the body.

TREATMENT

As time is the essence of most contracts, so is time the essence of the treatment of syphilis. The need is not for new drugs and new procedures, but a sane and conservative employment of the methods at hand. Each specialist has his own pet procedure in the treatment of syphilis but the important factors are time under treatment, the amount of drugs used, and the patient's general health. I have summarized the treatment as follows:

PRIMARY AND SECONDARY SYPHILIS

1. Arsphenamin in doses of .3, .4, .5 gm., the first 9 days.
2. Five more injections of arsphenamin, giving .4 gm. each week.
3. Begin rubs (Mercurettes) with the 4th injection, 4 to 6 weeks after first course.
4. Second course consists of 6 injections of arsphenamin, .3 to .4 gm.
5. Stop rubs when 80 have been given, and rest for 4 weeks. Then give another course of 80 rubs.
6. Forty-six weeks rest after second course of arsphenamin, when the third course of arsphenamin, consisting of six injections, will be given.
7. Fourth course of four or six injections of arsphenamin follows the third course.

SUMMARY

The patient will then have had a total of four courses of arsphenamin, .8, .6, .6, and .4 or .6, with an interval not to exceed six weeks between courses.

There are three courses of 80 rubs each in the first year, so given as to overlap the arsphenamin, until the third course.

A spinal puncture is done with the second injection of arsphenamin. If abnormal, another one is done with the second and sixth injection of every course.

LATENT SYPHILIS, AND ALL LATE SYPHILIS

1. If the patient is in poor shape, give one week's rubs or intramuscular injections before putting on nearsphenamin, .2 to .6 gm. The neo- or arsphenamin is thereafter given according to the patient's condition, for six weeks, one a week, rubs combined. After the course is finished, rest for from three to six months, when the course is repeated.

2. If the patient is in good shape, we begin on .4 to .6, of arsphenamin and mercury pushed to the limit. Urinalyses and functional tests are done weekly, if necessary. If renal irritation appears, the patient is put on a low protein and salt-free diet, catharsis and potus imperiatus. If irritation persists, rubs and intramuscular injections are cut down. The arsphenamin is the last to be reduced.

WASSERMANN-FAST CASES

If the Wassermann reaction is still positive at the end of two full courses, it is then a question which is the most harmful, the disease or the treatment. If the patient is in good shape, the treatment is continued and a renewed effort is made to find the active focus (often the spleen, cardiovascular system, or the central nervous system). The patient is changed from neo- or arsphenamin to silver arsphenamin. Bismuth is substituted for mercury, as it is felt that a distinct change in treatment is indicated.

SUMMARY

All patients with central nervous system lues begin with the general therapy. Not until after six weeks or three months of general therapy are they put on special measures such as drainage, intraspinal, or massive mercury and sodium iodid.

Routine treatment means six arsenoben-zols in five weeks with mercury by rubs or intramuscular injections, $\frac{1}{4}$ gr. a day (for 20) at the rate of five times a week.

I use Swift-Ellis method of treatment, and introduce more than I withdraw. I do not reinforce the serum, as I find this causes too much irritation.

The cerebral spinal fluid is seldom drained.

Sodium Iodide is given by mouth, per rectum, or intravenously.

Insoluble salts of mercury are seldom used.

All foci of infection, such as teeth, tonsils, sinuses, etc., are cleaned up before treatment is begun.

All cases of eye, vascular, meningeal and hepatic lues are prepared for arsphenamin with mercury and KI (usually five treatments a week).

One should not accept high Zone I of Lange's curve as conclusive evidence of paresis unless it recurs and is obstinate to treatment, together with other findings of resistance.

PROGNOSIS

We should borrow the phraseology of the

expert in tuberculosis, and tell these patients that so far as we can ascertain the disease has been arrested. It may recur, however, and a thorough examination, intellectual survey, and blood and spinal fluid tests, should be made each year to pick up signs of recurrence of the disease.

DISCUSSION

DR. CHAS. S. VIVIAN, Phoenix: We are indeed fortunate this evening in having with us a man whose training, research and experience makes him particularly capable to discuss the diagnosis and treatment of syphilis. As Dr. Sutton has told you, this subject is so large that the whole evening could be spent talking about it and only a part of the ground covered. I regret that we have not had someone to take shorthand notes of the valuable comments which the doctor has made as he has been showing these very excellent lantern slides. Those of us who are unfortunate enough to miss this evening's program will lose some very valuable and practical points both in the diagnosis and treatment of these conditions. Dr. Sutton spoke of the non appearance of secondary symptoms (secondaries) in cases suffering from late syphilis such as cardiovascular and neurologic cases. There is a very good reason for this occurrence. Syphilis which attacks the central nervous system is thought to do so either because one or both of two factors are present; first, the particular strain of the spirochete with which the individual is infected has a predilection for the

central nervous system or, what is more probable, the patient himself fails to develop immunity; this immunity developed in the skin at the time of the florid secondary eruption. Still another possibility is that the use of arsenic early in the disease without proper mercury treatment may destroy the patient's resistance and may thereby, as well as preventing the secondaries, predispose him to these later manifestations.

I must confess that I have not the implicit faith in the Wassermann reaction that Dr. Sutton possesses. I believe that we do get an occasional false positive. It may be that these cases are leprosy. If, however, the technic is properly controlled and the reaction is a four plus, I think that, with the possible exception of leprosy, the reaction is absolutely diagnostic of syphilis. Now in treatment, in my experience, the use of mercury in any form at the same time that the patient is taking arsenic, has produced, in many cases, irritation of the kidney and rather than subject the patient to this danger I usually allow an interval of about a week to elapse between the two. In the treatment of central nervous system disease, drainage of the canal by means of hypertonic salt solution intravenously has given as good or better results than the introduction of medications directly into the spinal canal.

In the short time allowed, it is impossible to do justice to the many points which Dr. Sutton has brought out in this very excellent paper and I am sure we are all grateful to him for a very profitable hour.

PERIODIC PHYSICAL EXAMINATIONS BY THE FAMILY PHYSICIAN*

*Address of the President, before the Cochise County Medical Society,
at the January Meeting, 1925.

Z. CAUSEY, M. D., Douglas, Arizona.

The question of preventive medicine is becoming such a paramount one that I deem it time well spent in bringing to the attention of this organization this evening a few pertinent facts bearing on this branch of the medical science.

We are all aware to some extent at least, of the marked advances made during the past few decades in the prevention of disease, and the great boon that has come to humanity through the discovery and application of preventive measures. In fact there only remain a very few of the more outstanding diseases, the etiology of which is not known, and for which either a specific remedy or a prophylactic agent has not been evolved. It only remains for organized medicine to become as diligent as it is and has been in evolving them, in order to reduce infectious and contagious diseases to an almost negligible quantity.

It is my contention that it is necessary for the organized medical profession to put forth every reasonable effort to promote the science of prevention of disease and to bring to humanity the great benefits

contained therein, or else the play will be taken from us by commercial and pseudo-philanthropic organizations and exploited for selfish purposes, thus robbing the profession not only of the well-earned glory but also the remuneration that is justly ours.

The one class of diseases that has so far escaped any very serious attention from the standpoint of prevention and that, from an economic standpoint, is possibly more important than any other, is the so called degenerative diseases. These diseases, as we are all aware, are insidious in development, and deadly as to results unless discovered and remedied before permanent damage has been done. Under our present system of medical practice these diseases are usually well advanced and permanent damage already done before symptoms of sufficient moment manifest themselves that will prompt the sufferer to seek advice or medical aid, and then many times they go to the druggist, chiropractor or some other cultist first, thus losing more valuable time, so by the time they reach the medical man, permanent damage has been

wrought and the most he can promise is a temporary lease on life, provided they will give up everything worth while and devote their time to keeping themselves alive.

What I have in mind and the thing that I wish to especially bring to your attention this evening is the great need for a thorough periodic physical examination of every man, woman and child, and the wonderful advantages that would accrue to the race through such a practice. The American Medical Association is co-operating actively in plans for promoting periodic physical examinations among the public, and in devising methods whereby this function of the physician will be retained in his hands rather than delegated to commercial and pseudophilanthropic organizations. In considering this subject Dr. Edie, as a member of the Committee on Public Relations of the Pennsylvania State Medical Society, contends that any physician can plan and conduct a campaign for periodic physical examinations of the public in his own community with the assurance that some of the citizens will be found favorable to the movement and that a gradually increasing proportion of the population will seek such examinations as they come to know the object of and the benefits that such examinations hold in store for them. In this connection, however, the individual physician must be ready to give his own patients a type of physical examination that will be above reproach and upon the findings of which definite deductions can be made, and upon which specific advice and treatment can be based.

It would really seem needless at this time and in the light of all the facts in hand to urge on the profession the importance of such a campaign as a means of prolonging life and adding to the economic efficiency and happiness of the race, but when we consider the importance of the question and the indifference manifested by the great majority of us, it becomes necessary to urge that the individual physician become thoroughly sold to the idea rather than to permit such examinations to become the business of those who are only too willing to exploit the practice of medicine.

Dr. Thomas Darlington, formerly Commissioner of Health, New York City, published in 1922 a book on "Health and Efficiency" and in his chapter on the cause of disease and the benefits of physical examination, he says:

"For every one, especially for those who know

little or nothing of the human body, and how it works, it is of the utmost importance to be examined occasionally by a competent physician, or group of physicians practicing various specialties, to learn whether any disease is beginning. The urine should be examined for albumen and sugar, preferably by a chemist; blood for anemia; the weight should be taken to detect gain or loss, the heart and lungs thoroughly tested and blood pressure registered. The material that is passed from the bowels should be examined, and x-rays of teeth and other parts of the body should be taken, and the records kept for future comparison. All this is necessary to find if any part or organ is giving way.

"How are we to know what organs are weak? Only by a full physical examination, such as I have already mentioned. This examination should be repeated at least once a year, thus watching for commencing disease. Such examinations are particularly necessary if one is not in good health, or for any reason cannot do his daily work."

Edward H. Marsh, writing in September, 1922, on "The Need of Periodic Physical Examination," says in his conclusions:

"(1) It is evident that the mortality in the so-called degenerative diseases is steadily increasing.

"(2) Health surveys show almost one-third of those sick and disabled are so because of these diseases.

"(3) Health surveys show that 28 per cent of those sick and disabled have been in such condition for one year or more.

"(4) From 10 to 12 per cent of individuals with physical impairment necessitating medical advice are not aware of their condition.

"(5) The economic loss from morbidity and mortality in these diseases is enormous.

"(6) By periodic medical examination with appropriate advice and treatment the mortality from the degenerative diseases can be postponed."

J. M. Dodson of Chicago, published in January, 1923, an extensive article on "Preventive Medicine and the General Practitioner," in which he says that six years ago he commented on the fact that the industrial physicians, in devoting the greater part of their time to keeping employes well, were pointing the way to the general practitioner. He also predicted that in the not distant future, "the family physician would become, in large part, the family health adviser and would find his largest usefulness and derive a large part of his income in the field of preventive medicine."

Dodson further states that important changes are coming in methods of medical education, and that it is quite as certain that in this evolution preventive medicine will come to play a much larger role than in the past. He then defines preventive medicine as being that science and art which seeks to prevent the occurrence of disease in the individual and to limit its spread in the community. It comprises personal hygiene and community hygiene

and sanitation, and, says Dodson, the general practitioner is intimately concerned with both of these phases of preventive medicine. In the matter of personal hygiene, which is the more important of the two, it is the family physician to whom the community must primarily look for advice and instruction.

Among many arguments made by Dodson as to the value of preventive medicine, he refers to the necessity for periodic physical examinations, and that such an examination should be made once a year by the family physician. He then adds:

"The action taken by the House of Delegates of the American Medical Association at the St. Louis session is evidence of the fact that the medical profession is aware that such examinations are important, and that they should be encouraged and facilitated. The resolution, passed by the House, as presented by the Council on Health and Public Instruction, reads:

"Whereas, the need and value of periodic physical examinations of persons supposedly in health are increasingly appreciated by the public, it is recommended by the Council on Health and Public Instruction that the House of Delegates authorize the Council to prepare suitable forms for such examinations and to publish them in The Journal of the American Medical Association; and that the county medical societies be encouraged to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charges and that all others are expected to pay for such examinations."

Further Dodson writes:

"To render adequate and satisfactory service to his patients in the matter of prevention of ill health, the family physician should visit their homes at such intervals as will enable him to know the conditions of their living and working, and to advise when changes in such conditions are essential for the welfare of the family or any of its members."

Dr. Frank Billings, writing in February, 1923, on "The Resourceful General Practitioner of Modern Medicine," says among other things:

"With due regard for the value and need of all

the splendid ultrascientific laboratory and instrumental methods of physical and functional diagnosis in investigatory medical work, they are needed in the routine clinical care of not to exceed 20 per cent of all the patients of any urban or rural community. Unfortunately, many lay people have been made to believe, and apparently a large number of physicians think, that the routine application of the ultrascientific methods of diagnosis is necessary in the majority of cases. The fact is that the diagnosis can be made in fully 80 per cent of all cases by a resourceful general practitioner who will efficiently use his brain, special senses, hands and an always available simple and inexpensive laboratory and instrumental equipment. In a discussion of the means of diagnosis available to the general practitioner, the history of the past and present condition of the patient is one of the most important, if not the most essential, factor."

The periodic physical examination of apparently healthy persons is designed to detect the early evidence of disease before discomfort, inconvenience, interference with routine or anxiety has driven them to seek medical advice or treatment for established disorders, and before permanent and irreparable damages have been wrought.

In the past, when a person has consulted a physician he usually has had symptoms of a disease of which he has been aware and concerning the importance of which he seeks advice or relief through treatment, or he fears he has a disease, although not suffering from anything more tangible than apprehension of disability, or he has sought protection against some known preventable infection, such as small pox, typhoid fever or diphtheria. Nowadays, however, we find people in increasing numbers coming to physicians to have stock taken of the condition of their bodies at more or less regular intervals and seeking advice as to means for keeping their physical machinery in normal working order. This practice is bound to increase as the people become more enlightened, hence, the importance and timeliness of this subject.

FUNCTIONAL IMPOTENCE IN THE MALE*

By CHAS. S. VIVIAN, M. D. SOUTHWEST CLINIC

Phoenix, Arizona

*Read before the Maricopa County Medical Society, at its regular meeting Feb. 21, 1925

The subject of impotence is one of the least understood, one of the most lightly thought of and, at the same time, one of the most highly interesting in medicine. There is no more grateful patient than the one who is relieved of impotence. Those of you who will treat this subject seriously, will find that the problems involved are,

many times, as interesting as any of major surgery.

The first consideration to be borne in mind is that impotence is a symptom and not a disease. The basis for this symptom may be psychic, functional or organic. Purely psychic impotence is very rare; organic impotence is relatively rare. Func-

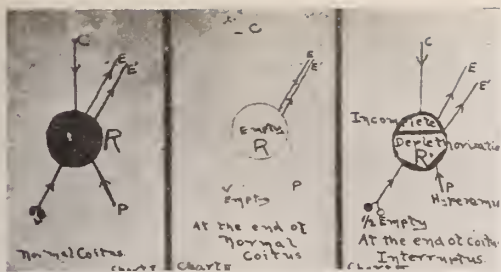


Fig. 1

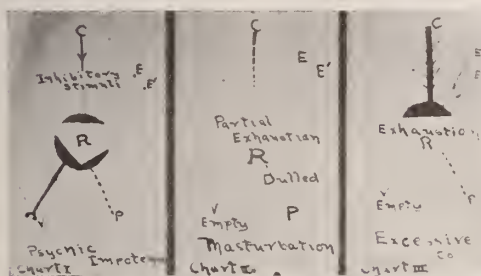


Fig. 2

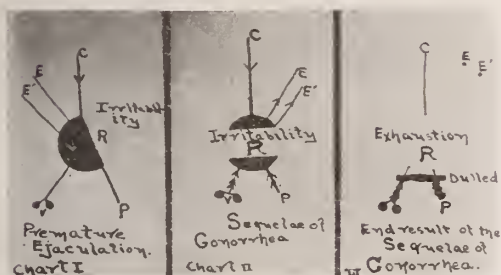


Fig. 3

Figures 1, 2 and 3: (Modified from Huhner, after Groag). C, cerebrum; R, erection center (which causes the expulsion of the secretions of the sexual glands); E, spinal ejaculation center (which controls the striated muscle fibres); P, glans penis; V, seminal vesicles. The single arrow indicates an ordinary impulse, the double arrow a very strong impulse.

tional impotence may be defined as that condition which makes one impotent, and has for its basis some pathological condition which may be relieved by appropriate treatment. This definition might be conceived to cover some of the types classified as organic, were it possible to effect a cure by remedying defects in the sexual apparatus by surgical means, such, for instance, as the transplantation of testicles.

It is the purpose of this paper to deal only with the functional type. Before considering this type, it is necessary to understand that there is a certain element of a psychic nature which enters into all types; for, after failure, the individual is apt to be fearful that the next attempt will be a failure. He has, therefore, as a result, a marked cerebral inhibitory impulse sent to his sexual center. Having once overcome these psychic repressions, fear vanishes and the vicious circle is broken. Etiological

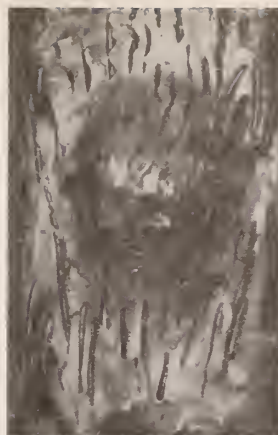


Fig. 4



Fig. 5

Fig. 4: Original wax model of the posterior urethra. In this and subsequent illustrations, the bladder is understood to be at the top of the page and the picture is as seen through several fields when viewed with a Buerger cystourethroscope. Inflammatory reaction around the verumontanum and anterior to it as well as on the declivity. The scars here represented are exaggerated in reproduction.

Fig. 5: Almost complete obliteration of the verumontanum and utricle by an overgrowth of scar tissue which leave only a small part of the lateral portion of verumontanum exposed to view; this scar tissue was destroyed which resulted in restoration of function.

factors which are responsible for impotence of the functional variety, are gonorrhea, syphilis, excessive coitus, coitus interruptus (withdrawal), masturbation, and ungratified sexual excitement.

In order that we may understand the mechanism by which these various factors interfere with the normal act of cohabitation it is necessary that we consider briefly the normal *modus operandi*. (Fig. I, Chart I) In the purely physiological type the process is initiated in the seminal vesicles; as they become filled by the normal accumulation of secretion they send stimuli to the erection center (R). This has been proven in frogs whose desire for sexual intercourse is removed by squeezing out the contents of the vesicles and is again restored by injecting the vesicles to distention with tap water. The erection center then makes itself felt in the cerebrum (C). Nerve impulses originate in the cerebrum under proper or improper conditions and are sent back to the erection center. These impulses serve to stimulate the dilator nerves and engorgement takes place. New stimuli are sent from the end-organs back to the erection center (R), which impulses serve to strengthen the status quo. The stimuli received from the cerebrum and from the end-organs (P), are stored up in the erection center (R) until the cells of this center are full to overflowing, at which time the center explodes, sending impulses to the sympathetic ejaculation center (E) and the spinal ejaculation center (E) and the act is complete.

Any practice which results in the imperfect physiological functioning of this act produces pathological changes in the structures concerned and results ultimately in the symptom of functional impotence.

In coitus interruptus (withdrawal) (Fig. 1, chart II), the erection center (R) is not completely emptied for the reason that the stimuli cease to come in from the end-organs (P) and the explosion is partial. The impulse remaining behind in the erection center serves to irritate it and also tends to charge it in a shorter length of time than normally, the impulse being incomplete. The seminal vesicles are likewise partially full at the end of the act. The prostatic urethra is still in a semi-erect condition. A vicious circle is hereby initiated, the interval between becomes shorter and the center which is thus being constantly bombarded becomes hyperirritable. Now what does the patient notice at this time? As the center is in a state of hyperirritability (Fig. 3, Chart I), it responds very quickly to the stimuli, either from the cerebrum or the end-organs and ejaculation takes place prematurely. The brakes on the center are slipping; soon they fail to hold at all, with the result that the ejaculation center responds to the slightest provocation and the act is complete before it is fairly started. These patients fail to effect entrance. They fondly imagine that the premature discharge is due to a superabundance of sexual power, which fallacy is strengthened by the fact that the vesicles and prostate being incompletely emptied, are soon ready to shoot again and the vicious circle is prolonged. Frequently these patients are advised that their condition is purely psychic and are encouraged to forget their troubles and to try again. Now the erection center ceases to respond to stimuli and erection does not take place.

Exactly the same state of affairs results from an entirely different cause in psychic impotence (Fig. 2, chart I) where the inhibitory stimuli from the cerebrum prevent the erection center from functioning or allow it to function very much as it does in the hyperirritable stage of coitus interruptus. It is very necessary to proper treatment that differential diagnosis be made between these two conditions because, as has been pointed out, there is always a certain element of fear of failure after partial inhibition.

In masturbation (Fig. 2, chart II), which is probably very rarely the cause of impotence, the pathology resembles that of coitus interruptus, except that the stimuli from



Fig. 5a

Fig. 5a: Massive increase in size of verumontanum associated with chronic hypertrophy of the posterior urethra. The typical picture in masturbation.



Fig. 6

Fig. 6: Papilloma situated close to duct of verumontanum. Scars of old urethritis on declive. This condition was accompanied by complete loss of sexual function.

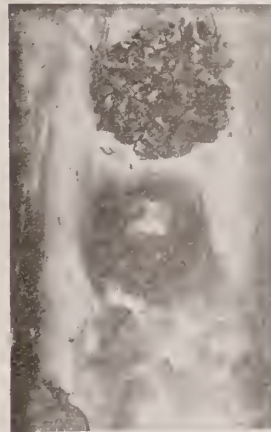


Fig. 7

Fig. 7: Large papillomatous tumor situated on the declive. Some increase in the size of prostate is shown and there is some inflammatory reaction around the verumontanum.



Fig. 7a

Fig. 7a: Small warty outgrowths anterior to the verumontanum; slight increase in size of prostate due to chronic inflammatory change.



Fig. 8

Fig. 8: Scars of posterior urethritis (accentuated reproduction), papillomatous outgrowths springing from the verumontanum. Etiological factor in this case was apparently gonorrhea. There is a slight increase, also, in the size of the prostate.



Fig. 9

Fig. 9: Massive infection of the posterior urethra where fibrous tissue is heaped up anterior to the verumontanum sufficient to produce a tumor-like prominence.

the vesicles, which are constantly being stripped, is lacking, erection fails to result, or the end-organs are not so sensitive to stimuli and erection is apt to fail before completion of the normal. The chief demonstrable pathology in these three types of cases, lies in the posterior urethra and verumontanum.

Excessive coitus (Fig. 2, chart III) is the easiest of all the causes of impotence to understand, as, obviously, it is the direct etiological factor producing exhaustion of the ejaculation and erection centers. Inasmuch as the resulting pathology in this condition shows little or no change in the organs themselves, the remedy—rest—is usually successful.



Fig. 10

Fig. 10: Seaweed-like papilloma springing from the anterior surface of the verumontanum spreading back in graceful fold to rest upon the declive. Increase in size of prostate due to hypertrophy.

The pathology produced in the posterior urethra by the hyperemia of coitus interruptus is similar to that which is produced in this location as a result of chronic posterior urethritis and its sequellae, (Fig. 3, charts II and VI.), or by masturbation. In gonorrhea, however, the chronic inflammation produces scar tissue (Fig. 4), which acts upon the end-organs much as masturbation does; that is, the delicate sensibilities of the end-organs are blunted by the presence of fibrous tissue which carries no nerve endings (Fig. 5). It is as if one were to wrap the hammer of one's shot gun in cotton so that the force of the blow being lost therein fails to discharge the shell (Fig. 5^a).

Chronic irritation of the posterior urethra results frequently in the production of papillomatous growths, which may close the mouths of the ejaculation ducts or the utricle (Fig. 6) in which location obviously, they prevent normal coitus. The symptoms produced by these papillomatous growths vary with their location. A growth

situated upon the declive is not productive of much change in the sexual function although the concomitant pathology may be. A growth located at this point (Fig. 7) is more apt to produce frequency and urgency of urination. Actual papillomata occur in the posterior urethra sometimes independent of gonorrhea (Fig. 7^a), although in the experience of the writer, they are associated frequently; the urethroscope and the inquiring finger per rectum will disclose unmistakable evidence of (Fig. 8) chronic engorgement of the prostate. Irritation which produces localized papillomata in one case, may result in an over growth of scar tissue, giving the appearance of tumor formation in another (Fig. 9). In this illustration, the result is a chronic bombardment of the erection center by the presence of the tumor. Without modern instruments, many of the pathological conditions present in the posterior urethra escape attention, as for instance, a papilloma attached by small pedicle (Fig. 10) is pushed out of vision and missed entirely by the older instruments.

Treatment, of necessity, depends upon the stage of the condition present. The history and examination determine this point. To stimulate an exhausted erection center to further effort is like whipping a tired over-burdened horse over a hill. He may make it, but something has been taken out of him. After proper rest and the removal of the offending pathology, by appropriate treatment, stimulation is of benefit.

CONCLUSIONS

1. Impotence is a symptom, not a disease per se.
2. Proper appreciation of pathology depends upon an appreciation of the perverted physiology present.
3. Treatment depends upon determination of the point at which the vicious circle is intercepted.

EFFECTIVE REMEDY IN METAL POISONING, WITH SPECIAL REFERENCE TO LEAD

By STEPHENS, T. HARRIS, M. D.
El Tigre, Sonora, Mexico.

In the course of experimentation from July, 1924, to the end of the year, on cases of mixed lead, zinc and silver poisoning,—with a great preponderance of lead, and while investigating the possibility of systematic chemical antidotes, I ran across an article entitled **Post-Arsphenamine Dermatitis and Its Treatment**, in which P. Ravant, McBride, S. S. Greenbaum, Denny and

Henry R. Seamon of London were quoted in the use of sodium thiosulphate in cases of arsenic dermatitis, and suggesting its use in arsenic poisoning and bismuth and mercury poisoning.

As I had already begun experimenting with sulphur compounds as an antidote, and concluding that thiosulphate was the safest of such compounds, I proceeded immediately to try it on cases of acute and chronic metal poisoning of lead, zinc, and silver, in which lead very largely predominated. Of course, you understand that the sulphur has a very high affinity for most of our toxic metals, forming with them compounds which are harmless and insoluble in the tissues of the body except those which might be permeated or saturated with certain acids.

Cases of mild and severe chronic intoxication, as well as of acute poisoning were seen daily. While not having my records before me, I think that for five or six months I saw at least one new case a day. The chronic cases were especially interesting for the reason that they have an actual cellular intoxication, with apparently a selective saturation of certain tissues. Of course, the symptoms are more or less familiar to everyone, but it is most interesting to see a far advanced case of the chronic type. There were cases which had been poisoned time after time, and it was to this type I gave the most attention.

In most cases, a solution of thiosulphate prepared for intravenous use was used intravenously. Doses from .25 gm. to .5 gm. were used. The first sized doses were used in the beginning in an experimental way, and even in such doses was found to act in a most marvelous manner. There appeared to be an almost absolute tolerance of the thiosulphate in all cases.

One patient, who at the time was having lead colic, complained on the first injection of .5 gm. of some faintness and nausea. However, I doubt anything, except a psychic influence outside of the general ab-

dominal condition. Intense nausea, vomiting of an almost uncontrollable type and the most agonizing pain were found to be constant symptoms in the colic cases.

The tolerance appeared to be just as good locally. In quite a few cases, I used it intramuscularly with no sign of local irritation or ill effect of any kind, and apparently with the best sort of systemic antidotal effect. However, there were not a sufficient number of cases in which it was used intramuscularly to make an accurate comparison with the intravenous method, but will say it is of unquestionable value.

A very gratifying effect of the use of thiosulphate was the relief in two cases of metal myalgia or neuritis used near the site of the pain. Its use gave the most gratifying results in a general way—such as rapid gain in strength, in flesh, and in feeling of well being in the debilitated and run-down chronic cases.

I am inclined to believe that in most cases of lead colic, the judicious use and dosage of this remedy will be about all that need be done. This statement would apply to lead poisoning in general.

I have no idea as to what would be the dosage limit. I have seen the statement that as much as 31 grains is absolutely non-toxic.

It appears that in sodium thiosulphate we have a drug of incalculable value and one that is safe and positive in its action in cases indicated.

The industrial aspect in factories and mines needs no comment.

There is every logical reason to believe that its prompt and free intravenous use in acute cases of metal poisoning, as for instance bichloride of mercury, will yield both tissue and life saving results.

(NOTE: This paper was prepared by Dr. Harris, while at home, in El Paso, during the Christmas vacation, 1924, and was sent in for publication. Before this time, however, the article by Dennie and McBride appeared in the Jour. A. M. A., for December 27, 1924, advocating the use of thiosulphate in lead poisoning.)

SOME OBSERVATIONS OF THE NOSE*

CHARLES ECTOR PATTERSON, M. D., Tucson, Arizona.

*(Read before the Pima County Medical Society, March 10, 1925.)

The main function of the nose is respiration, interference with which is incompatible with the best of health. The anatomy of importance in connection with nasal respiration is in the lower half of the nose; that is, the septum internally, and the lower portion of the middle turbinate and the inferior turbinate on the outer wall. The turbinates and lower portion of the septum

are covered with venus plexuses lying beneath the ciliated mucous membrane. These plexuses when filled with blood constitute the erectile tissue or swell bodies. The function of these swell bodies is to regulate the intake of air; that is, if the air is very cold they enlarge, narrowing, thinning, and slowing the incoming current of air, giving more time for warming, filtering and moist-

ening it. This function progresses nicely unless there is outside interference, such as dust, irritating fumes, colds and infections; either of these will cause the nose to close almost entirely, greatly restricting both respiration and drainage. If the acting irritant is of short duration, the animal economy overcomes the local condition and the swell bodies with their swollen mucous membrane return to normal; however, repetitions of such conditions will finally result in more or less permanent enlargement of these parts, giving rise to mouth breathing, a respiration which is very necessary in emergency but very deleterious if persisted in. That which interferes with respiration also greatly reduces drainage. Those factors which cause an increasing blockage to ventilation and drainage not only block the nasal passages but also the openings leading from the sinuses into the nose. This condition may be only temporary and clear entirely; however, frequent repetitions finally produce a complete blocking of some sinus opening, the air in the respective sinus will be absorbed, resulting in a negative pressure; this is accompanied by pain. Should this condition persist there is an exudation of serum into the cavity; this fluid often becomes infected, giving rise to empyema.

The above condition, if confined to cells instead of sinuses, gives rise to ethmoiditis, either inflammatory or purulent. Empyema, in one or all the accessory sinuses, is where the nose specialist begins his brilliant work, cutting off a part or all of the middle turbinates, curreating the ethmoids, rasping out the naso-frontal ducts, and often opening up the antra of the maxillary and sphenoid bones. Any one of these may get well but often does not. Results seem brilliant for some weeks, then the remainder of the patient's life may be spent in removing long, green, ropy, muco-pus and crusts from the nose. I am coming more and more to believe that the complicated mechanism of the outer wall of the nose should not receive surgical treatment, except in a very limited way and only in emergencies. Of course it is, at times, necessary to remove growths and pus of long standing. I believe in surgery as a last resort, but only after proper shrinking of the soft parts followed by suction, washing of the sinuses through natural openings when possible, and needle punctures when necessary. In other words, all possible cleansing measures and antiseptics should be used over a long period of time, unless the patient is in too serious a condition to wait. On the other hand, should

the pathology of the nose be due to anatomical deviations of the septum, then I believe in early surgery to prevent the infection getting started in the vital mechanism of the outer wall. With a crooked septum giving a constriction in one or both nostrils, it is easy to understand that a slight irritant would give sufficient swelling to block ventilation at this previously narrowed point. With the ventilation cut off there is a suitable area for germ activity which, in turn, causes still greater swelling. These mechanical constrictions or partial blocks, due to septal deformities are of numerous varieties and degrees, and when such conditions are giving trouble, they should be corrected early and completely, so as to give free ventilation and drainage before infection of the sinuses takes place.

In children with nasal obstruction it is customary to remove the adenoids and tonsils. This being done, it seems that we feel our duty toward the child is completed even though in many cases the child shows no improvement in nasal respiration. It seems to me that we are too quick to feel that all possible has been done. I suppose, in most cases of this type, the tonsils should be removed; certainly the adenoids should be. But it does very little good to remove the block from one end of the nose unless you unblock the other end also. On inspection of these cases one will find the swell bodies blocking almost the entire nostril anteriorly; pus may or may not be seen in the narrow crevices. If the child is lucky, one nostril may stay partly open, but if he should lie down on that side it will close, and the other may or may not stay entirely closed, according to the severity of the case.

It may be that this contractile tissue in these swell bodies has become paralyzed or partially atrophied because of the lack of use. This lack of use may, in turn, have been the result of a blocking by the adenoids and possibly aided by the hypertrophied tonsils. However, at this stage, the removal of the adenoids does not relieve these cases; that is to say, does not restore nasal respiration. Therefore, I feel that it is our duty to have these children return to us after operation and administer treatment until nasal respiration is entirely restored.

In children, I want to suggest a carefully regulated regime of breathing exercises; a constant watch over the open mouth by an attendant; if necessary, a halter to keep the mouth closed, especially at night. In stubborn cases it is sometimes necessary

to shrink the swell bodies with suitable drugs. This encourages the child by letting it know that it is possible to breathe through the nose, for the more the ventilation the less the swelling. If there should be pus or muco-purulent secretion present, a gentle suction from one-half to two pounds often does good. It is of course necessary to use good nourishing foods and to keep the child out of doors.

For adults, in addition to the above, I believe in early correction of septal deformities if the patients suffer from frequent colds, headaches, and obstructed breathing. Straighten the septum before the sinuses become involved; while this does not absolutely insure one against sinusitis, it certainly lessens the chances materially in most of the cases.

THE IMPORTANCE OF CAREFUL DIAGNOSIS OF ABDOMINAL CASES

R. L. RAMEY, M. D., El Paso, Texas

Read before the El Paso County Medical Society.

If I were to make the statement that at least 20 per cent of all abdominal cases operated are mistaken diagnoses, I do not believe I would be making a misstatement of facts. There are so many conditions in the abdomen that present the same line of symptoms that we are often misled. This is especially true, I think, if we get into the habit of operating too hurriedly on every case that presents itself. How many of you can recall numerous cases who have had several operations and still say they have gotten no relief from any of them, and still present the same identical symptoms for which they have been operated.

These cases usually present a train of symptoms as follows: indigestion, soreness in the right abdomen, constipation and, if a woman, usually headache about the time of menstruation. When no more positive symptoms than these are discovered, the appendix is usually charged with the offense and of course it is very promptly removed. Everything goes well for a while especially when the patient is convalescent and on a rigid diet, but in the course of a few months this patient turns up in some other doctor's office. They go from one to the other and get all sorts of diagnoses and operations and finally the patient is designated as a hospital parasite. Such epithets I fear are too often erroneous and we are ourselves to blame, as we have been too hasty in making our diagnosis and too anxious to give ready relief.

I am not charging this condition to any particular set of men, as we are all more

or less guilty. This applies to the specialist in general I believe more perhaps than to the general practitioner, each one trying to identify the trouble with his particular field of work.

What I am trying to bring to your attention is this. These obscure cases with pains in the abdomen, etc., who go shopping as it were from one doctor to another and are operated on two or three times without relief, in my opinion, in ninety-five per cent, are suffering from some trouble not properly diagnosed and consequently can get no relief. Perhaps if we were a little less hasty, our patients would be better off and we would be better satisfied with the results.

I do not refer to the cases that have classical symptoms. In a great majority of these the diagnoses are plain and easily made, for instance an acute appendix, the passage of gall stones, kidney and ureteral stones, ruptured ectopic, or an acute intestinal obstruction. On the other hand when any of these conditions are of a low grade type and are more or less subacute or chronic in nature, any one of these may be confounded with the other. Who of us, for example, have not been perplexed as to whether or not we had an inflammation of the lower lobe of the right lung, a gall bladder, an appendix, a stone in the kidney, pyonephrosis or an ulcer of the stomach?

CASE REPORT; BRAIN TUMOR

HARRY LEIGH, M. D., El Paso, Texas.

D. S., age 5 years, female. Past illnesses are broncho-pneumonia at 2 years, otitis media at 2 years, and chickenpox at 3 years; continued good health until the last illness in April, 1924.

Family history of little importance except that the mother's mother died of a cancer of the breast.

Onset of last illness began on April 22, 1924, with convulsion, vomiting and moderate temperature. The attack lasted most of the night and the following day she appeared nearly normal except for slight muscular weakness in the arms and legs, but this proved to be transitory. No reliable neurological findings at this time. Three weeks later another attack somewhat different in character developed following a number of rides on a merry-go-round. This time the onset was gradual with clonic movements of the face and left arm and a gradual loss of consciousness. Nausea and vomiting were rather pronounced. The attack lasted about six hours and terminated in a deep restful sleep. No sequelae affecting the nervous system or the motor functions could be detected the next day. A third attack again appeared on the following third week associated with very little loss of consciousness, but with a pronounced involvement of the left face and arm. Clonic movements developed that would gradually extend to the left leg, then the right leg, and the right arm. Dr. S. A. Schuster saw the case and the possibility of a tumor was considered. In the subsequent weeks a careful physical examination revealed a thinning of the cranial vault, a high intraspinal pressure of 15 mm. of Hg. Eyes, Barany tests, central nervous system and Wasserman reac-

tions on the blood and spinal fluid were negative. In June the case was seen by Dr. Sidney Kuh of Chicago and the possibility of a pituitary disease was considered and the whole gland advised. The child grew and remained free of symptoms until late August when attacks of nausea with severe vomiting was noted and the x-ray revealed further rarefaction of the cranial vault. The nervous system gave little information. Slight convulsions again appeared, but this time associated with persistent headaches. The child was sent to Dr. Dean Lewis of Chicago, who, at a later date in October, operated. In the absence of localizing symptoms the surgery was attempted to relieve the violent convulsions that began to appear. A large right temporal osteoplastic flap was made and the tumor could not be located sufficiently well to attempt removal. A large cerebral hernia developed which relieved the intense headache and convulsions. Healing was slow and late in December the child returned to El Paso. The left side of the body was paralytic, but the degree of spasticity varied materially. The wound was healing well and the use of the left side of the body began to fail with corresponding improvement of the right. About Christmas week a gland appeared in the right cervical region that began to enlarge slowly at the same time that a hard mass appeared in the scalp incisions. On January 4th a definite change for the worse developed along with an old pyuria. Speech began to fail, food was difficult to swallow and a high temperature developed. The last three days of life the temperature ranged from 105 to 109 F. The child died on January 9.

Postmortem examination in terms of positive findings showed a hard yellowish mass under the scalp at the site of the operation which proved to be a sarcoma. A similar report was made of the cervical gland and peribronchial glands. The skull was removed with difficulty as it was adherent over the cerebral herniation. Thinning left the mere shell of the vault. The brain was so completely softened that removal for study was impossible. Evidence of the tumor having existed deeply in the right temporal region and had probably encroached on the internal capsule was found. Some of the deeper arteries had doubtless been cut off for some time. Dr. Waite reported a round cell sarcoma in the extra cranial and glandular specimen.

Comment: The case illustrates the difficulty of positively diagnosing a brain tumor, where no localizing symptoms present themselves. The greatest aids in suspecting the condition came from (1) the Jacksonian character of the attacks (2) evidence of intracranial tension above normal as shown by the x-ray and manometric readings (3) the history of a sudden onset of these violent attacks in a previously normal child. The later course of the disease with the bizarre neurological findings were accounted for by the extensive areas of softening.

TREASURER'S REPORT

ARIZONA STATE MEDICAL ASSOCIATION

TO THE COUNCIL AND HOUSE OF DELEGATES.

Gentlemen:—

I beg leave to present herewith Treasurer's Report for the year ending April 13, 1925: (Books closed this date)—

GENERAL STATEMENT

Total Receipts	
Balance General	
Fund 1924	\$ 659.57
Donation	5.00
Dues 1925	2100.00
"Savings Fund"	
April 11	2919.46
"Defense Fund"	2799.24
	<hr/>
	\$8483.27
Total Disbursements '25	786.61
Gross Balance	\$7696.66

STATEMENT BY FUNDS

(1) GENERAL FUND

Balance from 1924..\$	659.57
Donation	5.00
Dues 210 Members	
at \$3.00	630.00
Loan returned by	
"Defense Fund"....	100.00
	<hr/>
	\$1394.57

Disbursements duly authorized—vouchers	
Office Expense,	
Secretary	60.00
Secretary	7.56
Arizona Industrial	
Congress	50.00
Arizona Printers.....	26.00
Secretary—Office	60.00
Southwestern Med...	390.00
Sloan, Holten and	
Scott	100.00
Secretary—Office	60.00
Arizona Printers.....	4.00
St. Louis Button	
Company	29.05
	<hr/>
	786.61

Balance in Bank of Arizona in General Fund	<hr/>
	\$ 607.96

(2) DEFENSE FUND

Balance from 1924 after transfer of \$1000 to Savings fund as authorized by House of Delegates	\$2682.24
Int. June 1924.....	62.12
Int. Dec. 1924.....	54.88
210 Members at \$7.00 each	1470.00
Attorney's fee returned to General Fund	100.00
Balance in Defense Fund, Yavapai County Savings Bank at 4% interest.....	4169.24

(3) SAVINGS FUNDS

Balance from 1924..\$	1825.72
Transferred from	
Defense Fund	1000.00
Int. June 1924.....	36.50
Int. Dec. 1924.....	57.24
	<hr/>
	\$2919.46

Total available for Medical Defense Fund.....	<hr/>
	4169.24

\$7088.70

Defense Fund has earned \$117.90 since started.

RECOMMENDATIONS

(1) Your Treasurer is not under bond;

you should decide whether it is good business policy to require bond.

(2) That the Treasurer be allowed to pay all bills out of the General Fund, refunding as annual dues are paid, thus keeping the Defense Fund intact long enough to earn our \$100.00 in interest annually.

(3) That the Treasurer be authorized to transfer from Defense Fund to Savings Fund the sum of \$2000.00. (This without loss of interest.)

(4) From the Treasurer's standpoint there should be a new prorating of dues. For instance, 210 members @ \$3.00 gives \$630.00 for 1925. For 1925 we have already disbursed \$686.61 and the General Fund would be insolvent were it not for balance from former years. A conference with our Medical Defense Committee is planned with a view to definite recommendation at this meeting.

Respectfully submitted,

C. E. YOUNT, Treasurer.

We, the undersigned, a committee duly appointed by President R. D. Kennedy, have audited the books of the Treasurer and find them correct.

H. T. SOUTHWORTH

JOHN W. FLINN.

April 13, 1925.

The house of delegates recommended and passed a resolution directing the treasurer to make the following division of dues: \$4 to the General Fund; \$6 to the Medical Defense.

A RESUME

The Arizona State Medical Association convened for the Annual Meeting at Bisbee, April 16-17-18. Immediately upon being called to order by President C. A. Thomas, the office was turned over to President-Elect R. D. Kennedy.

The meeting from a scientific point of view was of a very high order; the contributions were excellent and showed that the essayists had made unusual efforts in giving of their best. Save in but two instances, the program was wholly Arizona. The program moved along in perfect order and was fully completed on schedule time.

The entertainment features were enjoyable and well arranged. The ladies were taken care of by the wives of the Bisbee and Douglas physicians. A buffet supper was served to members Thursday evening at the American Club, Agua Prieta. A most enjoyable evening of music, song and good fellowship was indulged in. One outstanding feature was the innocence with which the Secretary pulled the rope in the badger game. Friday evening the annual banquet was staged at the Country Club,

followed by President Kennedy's address and also an address on the "Physician's Economic Problems" by Dr. William Allen Pusey, President of the American Medical Association. The evening was concluded by a dance.

An event of special note was the fact that for the first time in the history of the State Association, we were honored by having as our guest the president of the American Medical Association (Dr. William Allen Pusey).

The president was met Tuesday morning by a committee from the Phoenix Chamber of Commerce and taken on a tour of inspection of the Mormon Flat Dam and lake. Wednesday noon, a luncheon was given in his honor at the Adams Hotel, at which time he addressed those present. Wednesday evening Dr. Pusey sat down with the Pima County physicians to an excellent dinner at the Old Pueblo Club, Tucson. In the evening he addressed a public meeting in the auditorium of the University of Arizona. Thursday afternoon and Friday evening he spoke at the Association meetings. Dr. Pusey was driven by automobile from Phoenix to Bisbee and over the entire route evinced the greatest interest in the beauty and early history of this southwest section. He paid special tribute to the great work. Dr. Douglas of the University of Arizona has done in investigating tree rings with the object of clearing up some of the early history and traditions of Arizona.

D. F. H.

SIDE LIGHTS ON THE CONVENTION

By a Sober One

Some doctors never get old. Who said that Dr. Armstrong was getting old? Nobody who saw the heel and toe dance in Agua Prieta.

There are some who still think the Alpha and Omega began at 7 p. m. Thursday night and ended at midnight. The Convention was then over.

It's a pity that outside "guests" did not know that medicos were interested in Dr. Pusey's lecture. We lost three good pages of wisdom. This was unforeseen but next time we will know.

Dr. Lund was needed because it took a heavyweight to hold down that enormous badger. Even the dog was tired before bets were all placed. So the badger could not get away, the rope was tied to a post. Altho scared of the animal, Dr. Harbridge was game even tho he had to be elected to the honor. Only the bartender knows just how much Harbridge lost. Bledsoe did lots of betting.

Vivian must be accustomed to play in real company or else he has not forgotten college day luck. Rumor has it that he made more per hour at Agua Prieta than a lucrative practice. Ask those who lost. Just to show it wasn't luck, he played the big boys at Naco in their own territory. He "black jacked" one old timer for 21 beans, then beat a crooked roulette table for one smacker. Innocent medicos contribute more. What do you think, Charlie?

Why were Tuttle and Stroud late at Agua Prieta? Ask Goss, he seems to know.

Coming home from Agua Prieta was some stunt. Ross Martin's Line Eight found six of its lines wrapped around a mesquite tree. Franklin was the chauffeur. That cement road has cracked a good deal and is confusing to one accustomed to ride a la Twohy.

There is less "hospitality" in Cochise County on this side of the line than in Maricopa County, but Johnnie says no Moore.

Causey is still looking for an opium den. The headquarters of the search were at the International. Newcomb and Shultz seemed to enjoy the show without the opium sights. Franklin appeared at headquarters between intervals. Greer and Stroud came, went and were disappointed. Greer says that Morley's lives up to a reputation. Agua Prieta has lived its reputation down, it seems.

Bailey was shocked—no, not shot—at Agua Prieta. At that, he did not know the difference between a diopter and Einstein's line after 9 p. m.

We learned Brown's (O. H.) previous occupation. Noise producer at a burlesque. Even the manager has visions of broken glassware.

Greer still wants to know if that was all the show they had across the border.

Bisbee is getting civilized somewhat. Of course, Bledsoe still wears the same cowboy hat, but the small boys did not bounce any beans off Dr. Pusey's low derby. Ten years ago the same derby would have at least started a medium-sized insurrection across the border. Bets were laid that it would still have broken up an Irish wake. But our esteemed doctor walked or roamed at will up and down Brewery Gulch unmolested.

Dr. Brayton still insists that Globe is stealing the stuff from Miami. They haven't stolen it all, however, as he says his garage is still a producer. (Something between oil and gas.)

Dr. Whitmore still names the Presidents, and distrust of Harbridge as State Secre-

tary has not been in evidence even if he is unsophisticated in the ways of border men.

Some men are born great, some become virtuous, and still others have something or other thrust upon them or whatever your interpretation is of the quotation. Frinstance! Dr. Sweek was delegate and Dr. Vivian is vice-president. Make your own diagnosis.

Most of the doctors did not care to have the border moved, but some of them wished that it would bend one-half mile south for a few minutes.

They know how to entertain in Cochise County this side of the border. Country Club open to golfers, AND NO GREEN FEES.

The ladies were well entertained both in Douglas and Bisbee, and a few of them visited in Naco TO WATCH THEIR HUSBANDS.

Watkins was conspicuous by his absence. We struggled through, Warner, and next year we get a REAL STENOGRAPHER.

Wilson and Flynn still maintain that they knew all that happened in Agua Prieta.

Going into Douglas, after the last big curve the big sulphur stacks looked close, but after two miles they looked just as far away. It seemed a long way to catch up with them, but coming home nobody seemed to care so they didn't run into them.

And can you think of anybody more fitting to be President than Bridge?

If we go to Nogales in 1927 we may settle a long drawn out tug of war.

It's a long time to wait, but Globe will be waiting for us.

If Harbridge gets telling of his next nine years of being Secretary and the incidents thereof about ten years from now, his will be some reminiscences and memories—not counting the experience. He still has not explained the red marks on his head—a treatment for baldness?

Two of the doctors got back to Bisbee without their wives. The wives finally elected to stay in Douglas. The road conditions being bad the doctors went the next morning. THIS IS TRUE, BUT NO NAMES ARE MENTIONED. Names on request. The telephone call was from the Copper Queen Hotel, Bisbee, to the Gadsden, Douglas.

It's bad enough to come home and find wifey out, but think of leaving her out!

The Southwest Medical Journal will carry the papers as they were written. This effort merely carries the news.

Good-bye for a year, and next time remember that your sin will find you out.

R. J. S.

PROGRAM

43d Annual Session New Mexico Medical Society, Clovis, New Mexico

May 19-20-21, 1925

Morning Session, May 19th

HIGH SCHOOL AUDITORIUM

- 9:00 Registration at Secretary's Desk.
 9:30 Meeting of the Council.
 10:00 Call to order by the President.
 10:05 Invocation: Rev. J. F. Nix.
 Address of Welcome: Mayor J. W. Board.
 President's Address: Current Progress and
 Trend of Preventive Medicine, Dr. D. B.
 Williams, Santa Fe.
 11:00 Meeting of the House of Delegates.

SCIENTIFIC SESSION

*Papers limited to twenty minutes.**Discussion to five minutes.*

The Value of Active Radio Waters in the
 Treatment of Diseases, Dr. L. M. Maus,
 Hot Springs, Ark.

Adjourn to 1:30 p. m.

- 1:30 Some Problems in Prostatectomies, Dr.
 Robert Day, Los Angeles, Calif.
 Discussion opened by Dr. P. G. Cornish, Sr.,
 Albuquerque, N. M.

The Therapeutic Action of Aniline Dyes,
 Dr. Paul Gallager, El Paso, Texas.
 Discussion opened by Dr. M. B. Culpepper,
 Carlsbad, N. M.

Importance of Prevention in Infantile Diar-
 rhea, Dr. M. K. Wylder, Albuquerque.
 Discussion opened by Dr. W. C. Buchly,
 Roswell, N. M.

Blood-Matching for Transfusion, Including
 the Method of Transfusion by the Cit-
 rated-Blood Method, Dr. Lee Yater, Cle-
 burne, Texas.

Discussion opened by Dr. P. G. Cornish, Jr.,
 Albuquerque, N. M.

Pemphigus, Dr. A. M. Washburn, Gibson,
 N. M.

Discussion opened by Dr. J. W. Kinsinger,
 Roswell, N. M.

Adjourn to 8:00 p. m.
 Auto Ride.

- 8:00 p. m. Public Session at High School Audi-
 torium.

Smallpox and Vaccination, Dr. W. H. Jenkins,
 Denver, Colo.
 Smoker.

SECOND DAY, MAY 20TH.

- 8:30 a. m. Meeting of the Council.

SCIENTIFIC SESSION, HIGH SCHOOL AUDITORIUM

- 9:00 Municipal Milk Control, Dr. Jas. R. Scott,
 Albuquerque, N. M.
 Discussion opened by Dr. J. A. Smith, Ros-
 well, N. M.

Surgical Consideration of the Hand, Dr. W.
 H. Woolston, Albuquerque, N. M.
 Discussion opened by Dr. F. H. Crail, Las
 Vegas, N. M.

Pre and Post-Operative Use of Lugol's So-
 lution in Goiter Cases, Dr. A. C. Scott, Jr.,
 Temple, Texas.
 Discussion opened by Dr. L. B. Cohenour,
 Albuquerque.

The Significance of Thyroid Disorders to the

General Practitioner, Dr. H. N. Latson,
 Amarillo, Texas.

Discussion opened by Dr. C. F. Beeson, Ros-
 well, N. M.

Allergy and Asthma, Dr. Orville H. Brown,
 Phoenix, Ariz.

Discussion opened by Dr. C. B. Elliott, Raton,
 N. M.

Adjournment to 1:30 p. m.

- 1:30 p. m. Meeting House of Delegates, Election
 of Officers.

Treatment of Mental and Nervous Diseases
 Dr. Carl A. Meninger, Topeka, Kans.

Discussion opened by Dr. A. H. Voight, Al-
 buquerque, N. M.

Syphilitic Aortitis, with Lantern Slides, Drs.
 E. A. Duncan and W. W. Waite, El Paso,
 Texas.

Discussion opened by Dr. P. S. Kaadt, Clovis,
 N. M.

A Phase of Gallstones, Dr. Jas. Vance, El
 Paso, Texas.

Discussion opened by Dr. E. W. Fiske, Santa
 Fe, N. M.

Tumors of the Kidney, with Lantern Slides,
 Dr. K. D. Lynch, El Paso, Texas.

General Discussion.

Mental Hygiene, Dr. C. W. Thompson,
 Pueblo, Colorado.

Discussion opened by Dr. H. M. Smith, Las
 Vegas, N. M.

Adjourned to 8:00 p. m.

- 8:00 p. m. President's Reception and Dance.

THIRD DAY, MAY 21ST.

- 8:00 a. m. Meeting of the Council.

- 8:30. Meeting House of Delegates. Select place
 of meeting for 1926.

SCIENTIFIC SESSION

- 9:00 Comparative Studies in the Treatment of
 Tuberculosis, Dr. W. Forest Dutton,
 Amarillo, Texas.

Discussion opened by Dr. F. D. Vickers,
 Deming, N. M.

Diagnosis of Pulmonary Tuberculosis by the
 General Practitioner, Drs. W. H. Cryer
 and F. D. Vickers, Deming, N. M.

Discussion Opened by Dr. W. F. Dutton,
 Amarillo, Texas.

X-Ray Differentiation in the Right Upper
 Quadrant, Dr. R. T. Wilson, Temple, Tex.
 Discussion opened by Dr. J. R. Van Atta,
 Albuquerque, N. M.

Radiation in Malignancy of the Breast and
 Uterus, Dr. J. W. Cathcart, El Paso, Tex.
 Adjourn to 1:30 p. m.

- 1:30 Diabetes, Dr. V. M. Longmire, Temple, Tex.
 Discussion opened by Dr. W. T. Joyner, Ros-
 well, N. M.

Radium Therapy, with Lantern Slides, Dr.
 A. R. Hatcher, Wellington, Kans.

Discussion opened by Dr. F. F. Fadeley,
 Albuquerque, N. M.

Sporotrichosis, with Report of Case, Dr. H.
 A. Miller, Clovis, N. M.

General Discussion.

Adjourned to 8:00 p. m.

- 8:00 p. m. Annual Banquet—Gran Quivira.

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NEW MEXICO MEDICAL SOCIETY

(Message from Chamber of Commerce,
Clovis, N. M.)

The Forty-third Annual meeting of the New Mexico Medical Society will be held in Clovis, on May 19, 20 and 21, 1925. Every doctor in Curry County is a member of the county, state and national organizations and are pulling like the "Twen-

Do not be in the class of old Doc Spinks, who used to say:

"That durned society meets today,
They ain't no use, by heck, to go;
They won't 'tell nothin' that I don't
know."

The Santa Fe Railway offers splendid facilities for getting in and out of Clovis. The highways are good for auto travel and,



Wheat as Far as the Eye can See, near Clovis, N. M.

ty Mule Team" for the best meeting New Mexico has ever had.

Clovis is expecting YOU. Begin planning now to that end. The program will be rich with scientific papers from men of national prominence. There will also be entertainment and a lively time for all. They say "Eastern New Mexico is dry, semi-arid, or something like that." Don't guess when you can know. Come and see for yourself.

at this season of the year, there is little danger of encountering bad roads.

Clovis is a city of 6500 inhabitants, of whom 97 per cent are Anglo-Saxon. The Santa Fe employs more than 800 men with a payroll of about \$200,000 per month. The city is surrounded by 980,000 acres of rich agricultural land, approximately 225,000 in cultivation, producing in 1924, 1,500,000 bushels of wheat, 5,000,000 pounds of

broom corn, 600 to 800 bales of cotton, \$1,000,000 in poultry and eggs, \$200,000 in hogs, \$1,050,000 in dairy products, \$500,000 in beef cattle, \$50,000 in turkeys, \$1,000,000 in Indian corn, kaffir, etc.

Even a doctor cannot live always. He needs a day of recreation, the same as he advises for his patients. The good that he will derive from a meeting of this kind will not only furnish the needed relaxation but make him a better doctor as well. The medical profession of Curry County is anxious that every member who can possibly do so, put aside the usual routine of business and come to the meeting. The Chamber of Commerce assures you that you will be amply repaid.

DR. OLIVER J. WESTLAKE

In the death of Dr. Oliver J. Westlake, of Silver City, New Mexico, another of the pioneer physicians of that state passed away. Dr. Westlake was fifty-one years of age; he was born in Kansas, graduated



Grand Quivira (Fred Harvey Hotel), Clovis, N. M.

from the Medico-Chirurgical College of Kansas City in 1900, coming to Silver City in that year. For several years he was surgeon for several mining companies and built up a large private practice. He served as County Health Officer for Grant County for a number of years, winning well deserved commendation for his excellent work in that position. In the World War he first served as chief physician for the draft board, later volunteering for field service. He was at Camp Cody for a short time, being then sent to San Francisco for a special course in surgery, then to Camp McArthur at Waco, Texas, from which point he left in command of Medical Replacement Unit No. 44, being stationed at St. Jareie Evacuation Hospital No. 7, until he was invalidated home.

The immediate cause of death was a tumor of the brain, for which he was operated at Johns Hopkins Hospital about a year ago, but the growth could not be removed entirely and its progress was only delayed.

Dr. Westlake is survived by his wife,

two sons and a daughter. The entire medical profession of Grant County joined in extending sympathy to the bereaved family. Honorary pall bearers from the County Society were Drs. Ernest Duncan, John Carhart, Alfred Vogt, Frank Carrier, W. D. Huff, John Osterhout and Carl Bosley.

COLONEL EDWARD P. ROCKHILL

Grant County Medical Society were shocked and grieved to learn of the unexpected death of Col. E. P. Rockhill, which occurred at Denver on March 11th, following an operation.

Colonel Rockhill came to Fort Bayard as a patient several years ago, having been placed on the retired list following a severe wound received in the Philippines. At the time of the World War, he had so far recovered that when Col. Geo. H. Bushnell was transferred to Washington, Col. Rockhill was restored to active duty and placed in command at Fort Bayard. The strain of this service was a severe tax on him and

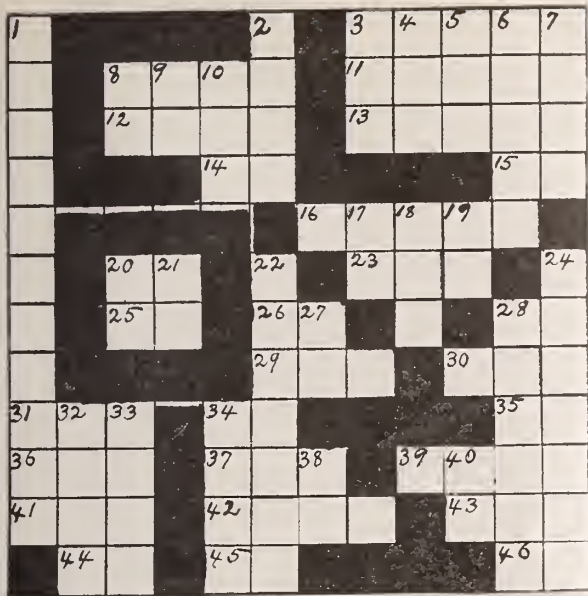
he was again placed on the retired list in 1919, and had made his home in Silver City since that time. He left for treatment at Fitzsimmons Army Hospital in Denver a few days before his death, and it was thought by his many friends in Grant County that he was on the road to recovery, when the news of his death came. He was an Honorary Member of the Grant County Medical Society.

NOTICE

To Those Doctors in New Mexico who have not yet paid 1925 Dues:

There are only a few of you and it is very desirable that your ranks be decimated entirely not later than May 15th, or those left on the list will have to be reported to the A. M. A. as "Suspended For Non-payment of Dues," and it will be the fault of no one but you. You cannot afford this, so get busy right now and send your little \$5.00 slip to

C. M. YATER, Secretary,
Roswell, N. M.



A prize of Ten Dollars in Gold will be awarded to the doctor who attends the New Mexico State Medical meeting and hands in to the Registration Clerk the first correct solution to this cross-word puzzle built around "Clovis." Dr. F. A. Dillon, Secretary of the Curry County Medical Society, Clovis, N. M., perpetrator of this, will award the prize.

Across

- 3. To climb (Scotch).
- 8. The Emerald Isle.
- 11. Venerable.
- 12. Honey.
- 13. The best Medical Assn. secretary in the U. S.
- 14. Suffix meaning like.
- 15. Cerium (Symbol).
- 16. Burning sensation.
- 20. Part of verb to be.
- 23. Before.
- 25. Preposition.
- 26. Pronoun (plural).
- 28. An organization (abbr.).
- 29. Edge.
- 30. The number of New Mexico doctors who should attend this meeting.
- 31. Spanish pronoun.
- 34. Common carrier (abbr.).
- 35. Chemical suffix meaning "oil."
- 36. One (Spanish).
- 37. Affirmative.
- 39. To displace.
- 41. Common Abbreviation.
- 42. Image of saint.
- 43. Slight muscular spasm.
- 44. Exclamation.
- 45. Behold.
- 46. A thoroughfare (abbr.).

Vertical

- 1. Metropolis of a great state.
- 2. Without exception.
- 3. Bashful.
- 4. Genus of grass.
- 5. Consume.
- 6. To build.
- 7. Ancient musical instrument.
- 8. Printer's measure.

- 9. Concerning.
- 10. Sick.
- 17. Personal pronoun.
- 18. Part of verb to be.
- 19. Concerning.
- 20. Pronoun.
- 21. Conjunction.
- 22. A good community to visit.
- 24. To gather up.
- 27. Yes (Spanish).
- 28. Should be your Mecca just now.
- 32. Meaning "to."
- 33. Distributive adjective.
- 34. Best way to come to Clovis.
- 38. Prefix in Zoology meaning "dawn."
- 40. Abbreviation for what the members should be at the meetings.

GRANT COUNTY (N. M.) MEDICAL SOCIETY

The society met in regular session at the Officers' Club, Fort Bayard, Friday evening, March 27th. Dr. E. S. Bullock presided, thirteen members being present.

The paper of the evening was by Dr. F. J. Nordby, of Fort Bayard, entitled "Certain Considerations in Operations on the Tuberculous for Gastric Ulcer." The paper was based on a series of fifteen operations for gastric ulcer in tuberculous patients for the U. S. Veterans' Hospital No. 55. Taken as a whole, the results from these operations had been very good, considering the general condition of some of the patients operated on. As a general conclusion, Dr. Nordby decided that the results of operations on the hypermotile type of stomach was much more favorable than operations on the hypomotile type.

The paper was very ably discussed by Dr. L. L. Miner, of Silver City, who cited a series of sixteen operations, part being emergency operations for gastric ulcer and the others selected; Dr. Miner stated that his results had been much better in the emergency cases than in the selected cases, and for what reason he could not state. The paper was also discussed by Dr. Maxim Pollak.

A committee was appointed to draw up suitable resolutions on the death of Dr. Oliver J. Westlake, which had taken place two weeks previously. Dr. Westlake had been a very faithful and enthusiastic member of the Grant County Society from its organization, and the announcement of his death was received with much regret.

The death of Col. E. P. Rockhill, formerly Commanding Officer of U. S. Veterans' Hospital No. 22, Fort Bayard, was announced. This occurred recently in Fitzsimmons Hospital in Denver. Col. Rockhill was an honorary member of the Grant County Society.

(NOTE: Further accounts of these two members will be found elsewhere in this issue of Southwestern Medicine.)

EL PASO COUNTY MEDICAL SOCIETY

March 2nd Meeting

(Continued from page 169, April issue)

DR. W. P. ROGERS reported a case of twins with separate placentas. First baby in placenta delivered, followed by second baby in placenta.

DR. W. L. BROWN reported a case of diffuse intestinal and peritoneal tuberculosis which had been mistaken for amebic dysentery.

"R. L. Mexican, male, age 28.

"He states that for the past three months he has not felt well and has had pains in the region of the stomach; eating always makes these worse

and often causes his bowels to move; he has lost forty pounds weight, but was able to teach school until last Friday; since that time his pains have been much worse and he has been in bed. Even with the loss of forty pounds weight he still looks very well nourished; he also states that his bowels move four or five times at night, always accompanied by much griping; no history of tuberculosis in family; he has temperature from 100 to 101 each evening, occasionally as high as 102; examination of chest was negative; on account of the fact that the x-ray showed the stomach displaced to the left of the median line with apparently pressure on the upper third of the lesser curvature, with no filling defects, and emptying normally, he was referred to us as a possible abdominal tumor case; this impression of the x-ray man was deepened because of pressure on the transverse colon near the splenic flexure which was also suggestive of a deep seated tumor; two out of three examinations of the stools showed occult blood, and one examination showed ameba histolytica; one examination showed free blood, and the cells were so well preserved that it was thought to come from the colon; Widal was negative, leucocytes 5000, with small mononuclears 16, large mononuclears 10, polys 68 transitionals 6, and hemoglobin 65; urine was negative; Wasserman was not made.

This case was not looked upon by us as surgical from standpoint of a tumor because of the fact that he was having very definite diarrhea, immediately aggravated by taking nourishment, having several stools at night, accompanied by much griping, with microscopical and occult blood present; his symptoms suggested amebic dysentery; mild typhoid had to be considered, and this was suggested by the fact that he had leucopenia, but the Widal was negative, and the symptoms had been going on somewhat too long for typhoid; we didn't undertake any explanation of x-ray as we could think of no tumor that could be accompanied by such symptoms except pancreatic, and in that case the stools should have contained much fat; in addition diarrhea-pancreatic tumors are only fairly common while the tumors themselves are comparatively rare; the leucopenia was consistent with amebic infection with a temperature, but ruled out any other infectious conditions which might have caused the diarrhea; after receiving the laboratory report for ameba we settled on that diagnosis without making further effort; this was the beginning of our downfall; postmortem on the body two months later showed that he had a very diffuse intestinal and peritoneal tuberculosis, a thing which we had failed to diagnose, and should have done so had we not attached importance to the ameba histolytica laboratory report; we never again expect to attach any importance to any kind of ameba unless they are definitely motile in character; we had not suspected tuberculosis in this case because he was a strong, hardy, well-nourished young man without ever having been known to have had tuberculosis; it also shows that laboratory reports on stools, where there is a diarrhea, are incomplete without a report as to tubercle bacilli."

DR. W. L. BROWN reported a case of intestinal obstruction due to adhesions following operation for ruptured gastric ulcer.

"F. E., male, age 33. In May, 1921, he had been having pain in pit of stomach, coming on three or four hours after eating and sometimes before eating; in other words, empty stomach pain; never been severe enough to keep him in bed; no vomiting, and he stated that eating did not make the pain better; often woke up after midnight on account of it; it was constant, recurring

every day; never had jaundice; physical examination was negative except tenderness in the epigastric region. X-ray examination showed irregular filling defect in the first portion of duodenum; first degree residue after six hours; diagnosis, duodenal ulcer. He was operated May 4, 1921. An old indurated duodenal ulcer, that had recently perforated, was found, the perforation being sealed against the under-surface of the liver just to the left, and in front of the gallbladder; gallbladder was not involved; the duodenum was separated from the liver; the ulcer cauterized; opening closed with catgut; this area patched with the gastro hepatic omentum; posterior gastroenterostomy was done; three months after operation he was complaining of much gas; this complaint of gas has been more or less constant during the past four years; in other words, the recovery has never been entirely satisfactory; recently he spent several weeks in the mountains, eating all sorts of rough diet, gained fifteen pounds, although he had never been under weight; he returned, complaining more bitterly of gas and discomfort. At this time, four years after operation, the x-ray report indicates that the entire barium meal is passing through the gastroenterostomy opening, that it is impossible to force any through the pylorus, and that there is a first degree retention between the artificial opening and the pylorus; he was advised to have further operative procedure as it was evident that there was an obstruction at the pylorus which might be due to the ulcer never having healed, scar contraction, or adhesion of the pylorus in such position that it would cause an obstruction; at operation it was found that the first and second portions of the duodenum were firmly adhered to the abdominal scar which was three inches to the right of the mid-line; this adhesion was three inches long and caused a short kink in the duodenum; consequently, the obstruction; the old ulcer had completely healed; there was no evidence of scar tissue, and the duodenum and pylorus were normal in every way; it would have been impossible to tell that he had ever had an ulcer; it would hardly seem possible that with all the induration and with the necessary—more or less—crude closure after cauterization that the local pathology could so completely disappear; gastroenterostomy opening was in perfect condition; the thumb and finger could be passed through the opening; after the duodenum was freed from the abdominal scar the right lower corner of the omentum was turned up and tacked to the under surface of the liver, separating the duodenum from the gallbladder and the liver, and then was caught in the peritoneal sutures of the abdominal wound so that the stomach and duodenum could not again contact with the abdominal scar. his operative convalescence has been perfect; it is too early to say about the future developments or adhesions.

"I think one of the most important problems in abdominal surgery is to undertake to prevent exactly what occurred in this case; that is, adhesions about the duodenum causing partial obstruction; also adhesions to under-surface of the gallbladder where, by their weight and dragging in the upright position, they cause a constant disability; we constantly try to avoid this by use of the triangular ligament of the liver, the gastro hepatic omentum, and in some cases the omentum itself; in these cases where the patients vomit a good deal after the operation there is always danger of more or less separation of the peritoneal layer of the wound causing a fruitful source of serious adhesions; many of these cases are worse in years following the operation than they ever were before. In over-zealous drainages and removals of

the gallbladder, especially in cases where they were not suffering from any very marked disability; this case also demonstrates how completely all evidence of old indurated duodenal ulcers may disappear following cauterization and and gastroenterostomy."

Discussed by Dr. G. Werley, Dr. W. W. Waite and Dr. O. Egbert.

DR. G. WERLEY reported further on a case reported here two weeks ago of a young boy having heart block with rheumatism following influenza. This case has shown much improvement and Dr. Werley thinks the condition was probably due to toxic state. Discussed by Dr. Waite.

NEW BUSINESS

Dr. E. D. Strong reports that Dr. W. H. Anderson, a member of the Society, is confined to his home with fractured leg. Motion made by Dr. Strong that the Society send Dr. Anderson flowers. Seconded by Dr. W. L. Brown. Carried.

Dr. W. W. Waite called attention to the fact that there is only a small percentage of the members of this Society who belong to the Southwestern Medical & Surgical Association. Motion made by Dr. Waite that a committee be appointed to solicit membership to the Southwestern Medical & Surgical Association. Seconded by Dr. W. L. Brown. Carried. The president appointed Dr. Waite, Dr. Jamieson and Dr. Strong as a committee to secure such memberships.

Dr. E. D. Strong, Chairman of the Legislative Committee, reported that the committee was in need of funds to carry out their duties.

Dr. Egbert brought up a question about the meeting of the Southwestern Medical Association which was to be held here, next fall. There seems to be some doubt as to the advisability of holding this meeting in El Paso this year, as the date would conflict with the meeting of the Southern Medical Association in Dallas. No action was taken by the Society, but the committee was authorized to consider the matter further.

H. H. VARNER, M. D.,

Secretary.

EL PASO COUNTY MEDICAL SOCIETY

MARCH 23, 1925

The meeting was called to order by Dr. John A. Hardy, president, at 8:00 p. m. There were present thirty-two members and three visitors.

Drs. Cathcart and Mason presented four cases of primary tumor in the chest, in three of whom the history and physical examinations had been made by Dr. E. A. Duncan.

One case had been classified as a chondroma, having a tumor about four inches in diameter, in right upper chest.

Three lymphosarcomas, beginning in the mediastinum, two extending up and involving the thoracic cavity. In these cases there is a paralysis of the diaphragm on the right side, probably due to pressure on the phrenic nerve by the tumor.

The third case of lymphosarcoma shows a tumor 5 c. m. in diameter, just to the right of the center, between the third and fifth interspaces, anteriorly.

The most pronounced symptoms common to all, except the last one, has been obstruction of the return flow of blood from the upper extremities, at times so marked that they are unable to lie down.

The last patient complains only of an irritating cough.

Discussion by Drs. Laws, Vance and Major Scott.

Dr. E. E. Duncan read a paper, "Renal Function Estimation in General Practice." Dr. Duncan discussed several methods of estimating renal function,

which can be easily carried out by the general practitioner. He does not think that one single test is sufficient in estimating renal function, and that one or more tests should be repeated several times. Dr. Duncan is of the opinion that this class of case is more frequently overlooked by the general practitioner than any other class of case with which he comes in contact. His discussion of the subject shows that by the application of simple procedures much information can be found out by simple methods which may be carried out in any office practice.

Discussion: Dr. Duncan's paper was discussed at considerable length by Drs. Werley, Scott, Rheinheimer and Lynch.

Drs. Leigh and Lynch reported a case of rudimentary left kidney and separate ureter occurring in a child two and a half years old, with pyelitis in this kidney. The child first had usual medical treatment with abatement of symptoms, and later a recurrence, at which time mercurochrome was given intravenously and the kidney pelvis washed with silver nitrate solution. Since this time there has been no recurrence and urine now shows only a very few pus cells.

Discussion by Major Scott.

MISCELLANEOUS BUSINESS

Major R. E. Tarbett, who has been detailed by the United States Public Health Service at El Paso for the past three years, and who has been active in the reorganization of the City Health Department and in the eradication of the mosquitos in this vicinity, has been transferred to some other public health work. Major Tarbett expressed his thanks to the society for the cooperation and assistance that he had received from the society as a whole while he was stationed here. Dr. John A. Hardy, president of the society, expressed the regrets of the society in Major Tarbett's transfer and expressed to Major Tarbett the appreciation of the society of the work which has been carried out under his direction. A motion was made by Dr. E. Egbert that the Surgeon General of the U. S. Public Health Service be informed of the work Major Tarbett has done in this community and the pleasant relations which have existed between him and the medical society, and also express the thanks of the society for the services rendered by Major Tarbett. Seconded by Dr. Cummins. Motion carried.

Adjournment.

EL PASO COUNTY MEDICAL SOCIETY

MARCH 30, 1925

The meeting was called to order at 7:45 p. m. by Dr. John A. Hardy, president. Thirty-four members and four visitors were present.

Dr. Harry Leigh, chairman of the Program Committee, announced that our next meeting would be held with the Southwestern Dental Association, who will hold their annual meeting in El Paso.

Dr. H. B. Homan announced that Dr. Krause, of Johns-Hopkins University, will make a tour of the Southwest under the auspices of the National Tuberculosis Association and would arrange to stop in El Paso if it were the pleasure of the society. Motion by Dr. Homan that the president appoint a committee to see if the necessary funds could be raised and to make arrangements for Dr. Krause's visit.

Dr. J. W. Cathcart read a paper on "Roentgen Diagnosis of Pulmonary Tuberculosis." Dr. Cathcart brought out the salient points that may be expected from the x-ray in the assistance in diagnosis of pulmonary tuberculosis. Dr. Cathcart illustrated his paper with some excellent diagrams and x-ray pictures. Dr. Cathcart emphasizes the fact that the general public have come to place too much em-

phasis upon the x-ray findings alone. He is of the opinion that the x-ray man should first interpret his findings and after assembling all of the data about the case he should then make a re-study of his x-ray findings. Dr. Cathcart's paper was discussed by Drs. Laws, Egbert, Gallagher, Riley, Homan and Casellas. Closing the discussions, Dr. Cathcart expressed his appreciation of the free discussion of his paper and said he would make some changes according to the suggestions before presenting his paper at the meeting of the State Medical Association.

Dr. P. R. Casellas read a paper on "Artificial Sunshine." Dr. Casellas discussed the subject very thoroughly and cited a number of experiments in which the actinic rays were very beneficial in the treatment of certain diseases. He emphasized the fact that the artificial rays can at all times be controlled and for this reason are superior to the sun rays. Discussion by Drs. Egbert, Leigh, Waite, Werley and Homan.

The question of raising the dues of the State Medical Association was brought up and discussed at length by the members of the society. There was considerable sentiment expressed by the members against this raise in dues. The question was left open to be discussed further at a future meeting.

Dr. J. A. Rawlings brought to the attention of the society the fact that the society is a member of the American Milk Commission and that so far this year a committee constituting the local Milk Committee has not been appointed. Dr. Rawlings made a motion that the president appoint such a committee. Seconded by Dr. Waite. Carried. The chair appointed Drs. Rawlings, Leigh and Craig as members of this committee.

Dr. J. A. Rawlings brought to the attention of the society that a delegate had not been appointed to the Southwestern Section of the American Association for the Advancement of Science. Dr. Rawlings made a motion that Dr. Prentiss be appointed as a delegate to their next meeting. Seconded by Dr. Waite. Carried.

There being no further business, the society adjourned.

Pima County (Ariz.) Medical Society

Regular meeting held March 10, 1925 at the Old Pueblo Club, President Dr. S. C. Davis, Presiding.

The minutes of the preceding meeting were read and approved. Dr. Victor M. Gore was in charge of the scientific program for the evening and presented Dr. J. B. Van Horn, official physician for the University of Arizona. Dr. Van Horn's subject was "A Resume of Physical Examination of Students at the University of Arizona" and many interesting points were brought out. Discussion by Drs. Davis, Mills, Butler, Gore and Van Horn. Dr. F. W. Allen read a paper on "Status Lymphaticus" with a report of two fatal cases, in one of which the diagnosis was confirmed by autopsy. Discussion by Drs. Newcomb, Davis, Butler and Allen. Dr. Jeremiah Metzger gave an account of his visit during the past summer at the Rollier Clinic at Leysin, Switzerland, illustrated with views of the different institutions, patients, school rooms, etc. The theories and methods of Dr. Rollier and the technic of heliotherapy as practiced at Leysin were also outlined. Discussion by Drs. Davis and Butler. Dr. Chas. E. Patterson read a paper entitled "Some Observations of the Noses" which concluded the scientific program.

A committee of the Tucson Nurses Association was present who presented a plan of their organization of the opening, March 15th, of the Nurses Official Registry of District No. 2 at 526 North

Tyndal Avenue, under the direction of Mrs. Alt. Nurses will be listed under the following classification: First, Graduate registered nurses; Second, Under-graduate, with at least one year training; Third, Practical nurses possessing recommendations from physicians under whom they have served.

Bills for stationery, postage and Chamber of Commerce membership were ordered paid by vote of the society. Under unfinished business, Dr. C. W. Mills presented the report of the Committee on Public Health and Legislation as follows:

Whereas, the law of the State of Arizona dealing with privileged testimony prevents a physician who has been employed in a professional capacity by a patient from testifying in court regarding his knowledge of that patient's conditions; and

Whereas, this law may prevent a physician from giving necessary testimony to protect a fellow-physician who is being sued for malpractice; and

Whereas, this prevention of testimony may and in the past has, in our opinion, worked injustice to the physician under trial;

THEREFORE BE IT RESOLVED, that we, the Pima County Medical Society, do here instruct its delegates to the Arizona State Medical to present this matter to the Committee on Legislation at the next annual meeting, urging on that committee to take proper action toward securing repeal or modification of the law in question; and

BE IT FURTHER RESOLVED, that a copy of these resolutions be sent to the secretary of each county society of the State of Arizona requesting that such society take action similar to the Pima County Society.

It was moved by Dr. Jeremiah Metzger, seconded by Dr. C. E. Patterson, that the report and resolutions be adopted. Motion carried unanimously.

Under Miscellaneous Business, Dr. Jeremiah Metzger announced the probable visit of Dr. August Rollier to the United States and the Southwest, either during the coming autumn or the year following and asked the society's pleasure in following the example of Albuquerque, El Paso and Phoenix in guaranteeing financial support for an address in Tucson by this eminent practitioner. Moved by Dr. V. M. Gore, seconded by Dr. J. I. Butler, that the society underwrite for \$250.00 such a proposition in case the opportunity occurs. Similar action was taken for like amount for a projected visit and address of Dr. F. Allen Krause of Johns Hopkins University, upon motion of Dr. J. Metzger, seconded by Dr. J. I. Butler. Both motions carried.

A letter from one F. H. Shields, was read requesting the cooperation of the society in the exploitation of a secret nostrum for the treatment of tuberculosis. Motion by Dr. J. Metzger, seconded by Dr. C. W. Mills, that the secretary be instructed to write an answer refusing any connection with the proposition.

Adjournment followed.

P. B. NEWCOMB, Secretary.

Regular Monthly Meeting of Arizona Hospital and Sanatorium

February 24, 1925

Meeting called to order, Dr. V. M. Gore, chairman, presiding.

Present: Doctors Whitmore, Mills, Patterson, Eckles, Butler, Peterson, Gore, Allen, Newcomb, Metzger and Huffman.

Minutes of the last meeting read and approved.

No committee reports.

Annual election of officers postponed from the

last meeting to the present one. Dr. V. M. Gore was elected chairman for the year 1925, Dr. C. W. Mills, vice-chairman, and Dr. P. B. Newcomb, secretary-treasurer.

It was moved by Dr. Metzger and seconded by Dr. Newcomb that Dr. B. L. Wyatt be elected to the staff membership. Motion carried. Moved by Dr. Mills and seconded by Dr. Newcomb that Dr. E. B. Turnage be elected to the staff membership. Motion carried. It was further moved by Dr. Metzger and seconded by Dr. Patterson that Dr. S. H. Eckles be elected to the staff membership. Motion carried. The previous election of Dr. E. J. Gotthelf and Dr. B. S. Norris was also recorded. It was moved by Dr. Metzger and seconded by Dr. Huffman that the present laboratory arrangement of the hospital with the Tucson Clinical Laboratory be continued indefinitely to be terminated by either party by due notice in writing. Motion carried.

Dr. Mills brought up the subject of the medical care and treatment of Brotherhood of Railroad Trainmen patients questioning whether the staff members should rotate more in this matter rather than put all of the burden on one or two men as appears to be the case at present. The subject of compensation for such services, was also brought up and discussed by Doctors Metzger, Butler, Huffman and Gore.

The question was brought up as to what constitutes the status of an out patient. It was moved by Dr. Metzger and seconded by Dr. Mills that when a patient occupies a bed in the hospital, such patient is not an out patient but a regular hospital case and subject to all rules governing hospital admission including routine laboratory tests. Motion carried.

Scientific program consisted of reports of cases of time during hospital residence as follows:

Dr. Metzger presented the case of Eleanora M. Bell, Case No. 1140, diagnosed as fairly well advanced pulmonary tuberculosis who complained of headaches, vomiting, later incoordination of fingers, paralysis left side of face and palate with difficulty in speech which symptoms would clear temporarily. Rigidity and typical symptoms of meningitis appeared, later ending in coma and death thirteen days after hospital admittance. Spinal fluid showed negative Wassermann. Cell count of 79 per cu. mm. small Lymphocytes 92%; smear of sediment showed the presence of a few tubercle bacilli. Blood Wassermann negative. The salient feature of this case was the fact the patient suffered for months with active tuberculosis but without cough or expectoration, eventually developing the fulminating meningitis. Case discussed by Dr. Mills.

Dr. Gore presented the case of Loy Brewton, Case No. 1153. Family history negative. The patient, a young boy, was traveling with his parents from El Paso to California and on February 13 at El Paso was taken sick with fever and some abdominal pain. When they reached Lordsburg, N. Mex., a physician was consulted and diagnosed the case as ruptured appendix, but in spite of this fact the family continued to travel in an open Ford until Tucson was reached. Case was operated upon on the 15th instant at this hospital and a gangrenous perforated appendix was found with some fluid in the abdomen and the omentum was wrapped around the remainder of the appendix. Following the operation free drainage of a thin sero-purulent fluid took place. Mercurochrome was given intravenously with a result that his temperature raised from 102 to 105 and then returned to 100. Pulse 120 to 136 and six hours later down to 120 again. Patient had two convulsions and died two days after operation. Dr. Gore stressed the fact that in peritonitis with fluid absorption, especially in children, the patient

is usually happy and feeling "all right," does not suffer much, acting somewhat as if drugged with morphine. In this case the exposure during the beginning illness and the fact that other children in family were afflicted with influenza may have contributed to the patient's slight chance of recovery. Case was generally discussed by the members present.

P. B. NEWCOMB, Secretary.

NEWS NOTES

ARIZONA HOSPITAL CHANGES NAME AND MANAGEMENT

The name of the Arizona Hospital and Sanatorium has been changed to the Tucson Hospital, by action of the board of directors of the Tucson Hospital Association, which recently took over the operation of the institution. Decision to change the name was made at a recent meeting of the board, held at the hospital. Rev. A. S. Baillie is president of the Board, with Fred W. Fickett, Jr., as secretary-treasurer.

The board of the Tucson Hospital association represents all Protestant churches of the city, and many civic and fraternal orders. According to the articles of incorporation, the association is to conduct the hospital on a non-profit basis, any profits that accrue being re-invested in the hospital. Bed room will be extended and more equipment will be placed there as the institution expands. The hospital has been crowded to capacity all winter, and a waiting list has been standing most of the time.

Decision was also made at the meeting to start the nurses training school in the fall, and the women members of the board were named as a committee to make arrangements for this school. It is the plan of the board to train enough nurses here to care for local needs. The staff, of which Dr. Victor M. Gore is chairman, will remain the same as before the transfer of business management.

FIRE AT ST. MARY'S HOSPITAL

Quick thinking on the part of nuns and nurses in St. Mary's Hospital prevented a big fire Sunday night, March 15th. As it was, smoke and water destroyed most of the chapel, though the actual flames were kept to the sanctuary where the fire started.

One of the sisters noticed flames coming from the sanctuary about 7 o'clock. She sounded the gong, bringing sisters and nurses from all the buildings. Immediately a staff bucket brigade was formed. Fire extinguishers also were brought into play, while one of the nuns sent in an alarm to the city department.

In four minutes a pumper from town was on the ground, and due to the fine start the sisters had made, the city firefighters soon were able to get the fire under control.

The chapel building is one of the oldest. It was built about 1885. Had the fire started at 10 o'clock a great catastrophe would certainly have resulted, one of the sisters said, because after a 12 or 16 hour day, the sisters never would have been aroused until they were caught above the flames, their quarters being directly above the chapel.

Up to last year St. Mary's had practically no fire protection. The late Frank E. Russell, who was manager of the gas company, and a former fire chief of Tucson, started a movement to give the hospital proper protection. He died before his vision bore fruit and Sam Headman, his successor, and John Reilly completed the work by popular subscription. City mains and hydrants were installed last April and both proved their value last night, firemen said.

The plant at St. Mary's is estimated at \$175,000.

The damage was not estimated. A move has been started to give the nuns a modern home. They have tried to keep their patients' equipment up-to-date and with operating expenses and income evening up year after year, no fund has ever been available for a home for themselves that would be more free from fire hazards.

COCHISE COUNTY (Ariz.) MEDICAL SOCIETY

The Cochise County Medical Society held its April meeting in Bisbee, April 2nd, at the Copper Queen Hotel where the society members were guests of the Bisbee doctors for dinner.

There were present Drs. Darragh, Cruthirds, Cook, French, Adamson, Ferguson, Wright, President Causey, Reese, Durfee, Bledsoe, Bridge and Lund.

President Causey called the meeting to order and dispensed with the reading of the minutes of the last meeting.

Dr. Bledsoe, the chairman, made a report of the committee on arrangements for the state meet this month. He stated plans were going along successfully and that there is good prospect of a large attendance.

Moved and carried that the public address of Dr. Pusey, president of the American Medical Association, be arranged, if possible, for Friday evening, April 17th, at the Bisbee High School Auditorium.

Moved and carried that the Program Committee extend an invitation to the registered nurses to attend both the scientific and social sessions of the meeting of the State Medical Association.

Moved and carried that the druggists of Bisbee and Douglas be invited to attend the smoker to be held at the club social in Agua Prieta, April 16th.

Dr. French demonstrated a case in which a spindle-celled sarcoma had been removed three months previously from the anterior chest wall right side. Patient is a boy about 12 years old. This makes the third time a tumor has been removed from his chest wall. The two previous ones occurred when 40 days old and 7 years old. The last tumor, malignant, arose from the connective tissue. The patient is now receiving deep x-ray therapy and has gained in weight. An x-ray is reported as showing what are probably metastases in the mediastinum.

Dr. Reese reported a case of leprosy accidentally discovered. The patient, an elderly Mexican woman, showed nodules on the forehead. The case was referred to Dr. Durfee who made positive diagnosis from laboratory findings. These latter consisted of the finding in nasal discharge swab of the bacilli of leprosy. Dr. Durfee stated that when there are found oin nasal discharge bacilli occurring in large numbers and in groups arranged in parallel which stain just as the tubercle bacilli do with carbol-fuchsin the condition is almost invariably leprosy. There is only one condition in which it might be confused, that is tuberculosis of the nasal passages. The bacilli of leprosy decolorize a trifle more readily than the tubercle bacilli. The latter are not apt to be found in such great numbers, nor arranged as above described. He also stated that in almost any tissue in the body the bacilli of leprosy are to be found in large numbers and in groups in parallel formation.

Dr. Reese reported additional cases of lobar pneumonia treated intravenously with 31 grains of sodium iodide in solution at a dose. He has come to the conclusion that this method is of value if instituted very early in the disease. He has given this dose on alternate days until the crisis occurs. His

experience leads him to believe that the method is useless after hepatization has occurred.

Dr. Cruthirds reported a case, accompanied by an x-ray, of a young white boy who several months ago had the flu. Since that time he has complained of photophobia and very much impaired vision. The latter would be relieved for a few weeks by lenses only to recur to its former condition. Examination shows the vision to be O. D. 20/100 O. S. 20/80. There is difficulty in distinguishing green color. Retinoscopy shows choked disc. Patient seems to have "bad cold." There is mucopurulent secretion from nose and tenderness over both antra, x-ray shows cloudiness of both antra. Both of the latter were punctured, pus was permitted to drain and the cavities kept washed out. Three weeks later the vision was 20/20 and 20/30.

Moved and carried that the thanks of the society be extended the Bisbee doctors for their very excellent dinner.

Adjourned.

Carl H. Lund, Sec.

ARIZONA DEACONESS HOSPITAL (Phoenix) STAFF MEETING

February 28, 1925.

The Medical and Surgical Staff of the Arizona Deaconess Hospital met at the hospital at 8 p. m., February 28th, Dr. Geo. Goodrich, chairman, presiding. Present, Drs. Couch, Wilkinson, Watkins, Greer, Holmes, Brown (E. H.) Clohessy, Vivian, Goodrich, Brown (O. H.), Garrison, Fattbert, Goss, Bailey, Slaughter, Mills, Felch, Shelley, Schwartz, Carson, and Randolph.

The abstract of the case records which served as a basis for the evening discussion follows:

No. 3504, male, Mexican, 21, shot through the upper right thorax; brought to the hospital in shock; pulse 140 to 152; resp. 50 to 56; patient expectorated blood once; blood was aspirated from chest; pulse and resp. continued high; temp. rose on 3rd day to 102.6; leuc. 23,600; polys. 89%; pneumonia diagnosed 7th day; chest drained 9th day; death 10th day.

No. 33515, white, male, 31, had ear trouble since childhood; Dec. 27th soreness developed behind right ear; was treated for two weeks by a physician; Jan. 5th, was unable to close right eye and jaw was much swollen; Jan. 12th had projectile vomiting; Jan. 14th had severe headache and another physician was called who advised immediate mastoidectomy; operated Jan. 15th; antrum was full of creamy pus; tip was full of granulation tissue; much ebonized bone above. Consultation with record of finding on Jan. 20th; heart and lungs involved; Kernig slightly positive; leuc 21,000; polys 79%; urine has no trace of albumin; death Jan. 20th; Autopsy, brain only examined; pus from right middle fossa and basilar surface of right temporal lobe; right ventricle with purulent fluid; smears showed pneumococci and sarophytic bacilli; diagnosis brain abscess and mastoiditis.

No. 3521, white female, 36, was in hospital in Dec. 1924 for incomplete abortion; curettage was done; Hb. 42%; erythrocytes 2,550,000; leuc. 34,600, polys 92%; she returned home in two days in "very good" condition; returned to hospital Jan. 19th with pain in pelvis on both sides; both tubes and ovaries painful to touch; uterus large and spongy with small fibroid; temp. 99; pulse 96; Hb. 60% leuc. 11,000; polys 67. Operation Jan. 20th; findings were both ovaries cystic, tubes inflamed; uterus large and spongy; appendix long; subtotal hysterectomy and appendectomy; pathologist's report says, "Uterus not definitely enlarged and no fibroid tumors; section of wall of uterus shows hyperplasia of interstitial tissue of membrane and slight amount of pathology; ovaries show multiple small

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For children and adults follow the same method in the proportion of $\frac{1}{2}$ teaspoonful of gelatine to a glass of milk.

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cysts; appendix shows moderate sclerosis with atrophy of mucosa and slightly dilated lumen; pathologic diagnosis, hypertrophic endometritis and chronic appendicitis; second day after operation temp. rose to 102, pulse to 120 and left arm and face became rigid; during night temp. went to 105 (rectal and pulse to 140; death on 22nd day; diagnosis bilateral salpingitis, cystic ovaries and fibroid of uterus.

Dr. Garrison thought that the treatment of the case No. 3504 was all that it should have been. Case No. 3515 was lost probably because of the treatment of the first two weeks of the last illness. The records of the first examination of case No. 3521, made only four weeks or thereabout before the operation, contained no record of painful tubes, cystic ovaries or a fibroid of the uterus.

If this had been in the findings of the examination it would have been a protection to the surgeon. As for the treatment of the patient when brought to the hospital, Dr. Garrison thought a conservative treatment might have been rest in bed, local applications, etc., rather than an operation; the pathologic examination of the tissues removed indicated too that the medical treatment might have been successful in relieving the woman.

As for the records, Dr. Garrison said that those for which the hospital were responsible were very good indeed with the exception of those records on the admission sheets. On the two sides of this sheet there are about 75 separate and distinct entries to be made. The doctor should see that these blanks are as complete as possible before they affix their signatures to them. He urged especially that the permit for operation be signed and if possible the autopsy permission.

General discussion on case No. 3504 was called for. Dr. Holmes said he thought it would be especially difficult to diagnose pneumonia in a collapsed lung.

Dr. Felch was called upon to discuss No. 3515. He said that this man came to him complaining of extreme pain in his ear; the patient was then referred to Dr. Bailey.

Dr. Bailey said that something should be said for the doctor who had taken care of the patient during the early part of his illness; this physician advised mastoid operation and the patient had steadfastly refused to be operated. When Dr. Bailey advised operation it was easier to get consent; patients oftentimes fail to heed advice for an operation until they have heard the admonition from several physicians. He said the inflammation of the ear was of long standing. Even the abscess of the brain may have been of several weeks duration. The abscess of the brain was an extension from the superior portion of the petrous portion of the temporal bone. The signs generally indicated the patient was doing well up to the last few days.

Dr. Mills said that his opinion was that the abscess of the brain was of recent development.

Dr. Schwartz said otitic brain abscess is almost always in the cerebellum or in the temporosphenoidal lobe. Other original localizations occur, but they are rare. The localization symptoms of abscesses of the temporosphenoidal lobe result in disturbance of cortical centres or from pressure on nerves or the extension of the abscess to the adjacent parts of the brain. The symptoms characteristic of a cerebellar lesion are vertigo and certain disturbances of equilibrium and movement. Vertigo alone is not proof of cerebellar disease, as it is often due to disease limited to the labyrinth. The initial stage of brain abscess accompanied by fever, headache and vomiting, is usually present, but of short duration and as it presents nothing characteristic, its significance is often not appreciated. All the symptoms present

must be carefully sought for. Occasionally, however, the patient is apparently quite well until a few days before death.

General discussion in Case No. 3521 was called for.

Dr. Greer asked what were the indication for laparotomy in this patient; he said that he belonged to the school of surgeons who believe that this was a patient in whom an operation was contraindicated. The removal of the appendix may have been good surgery; but certainly the removal of the tubes and uterus and the ovaries, as they must have appeared to the surgeon in view of the pathologist's report, was ill advised. A surgeon may easily err in his preoperative diagnoses, but his findings in the open abdomen should be such that the pathologist's report could not be widely different.

Dr. Watkins said that this case showed very plainly why page 1, of the admission sheet should be partially filled in by the physician. In this record the cause of death was given as bilateral salpingitis, cystic ovaries and a fibroid of the uterus; all will agree that these diagnoses are not sufficient for the cause of death. On another history abstracted by the secretary the cause of death was given as chronic bronchitis and muscular weakness. In another of the group the cause of death was retention of urine and cystitis; in another it was arthritis deformans; the hospital records do not all show causes of death in conformity with the United States Census Bureau classification.

Dr. Carson suggested that a copy of the death certificate might be filed with the records of each case that dies in the hospital. He wished to know why a hysterectomy was done in this case. As the surgeon who attended this patient was not present the question was not answered. A number of the surgeons present were of the opinion that the indications for operation in this patient as displayed in the records were not clear. Dr. Wilkinson said gonorrheal salpingitis was a distinct contraindication for an operation. On the request of the staff members the secretary read the records in detail. He said that the records showed an inadequate history and physical findings on both admissions to the hospital. The second history says that the woman had severe pain over the tubes for several months. Had this been recorded in the first history the surgeon would at least have been protected; as it is the records would allow one to infer that the trouble resulted from the condition that brought the patient to the hospital the first time. A consultation with the consultants' findings should have been recorded before the patient was operated on.

Dr. Vivian said that he was not able to more than conjecture at the cause of death in this case. He said that pernicious anemia might have caused death. More likely septic embolism or peritonitis might have been the cause.

Dr. Carson asked whether the anesthetist might properly serve as a consultant in the event of a therapeutic abortion; Dr. Felch said that he believed that a disinterested physician, or better two, should agree on a therapeutic abortion before it be done.

Dr. Goodrich said that a patient for a therapeutic abortion should have consultation with careful study of history and patient just as in any other consultation and the anesthetist is just as competent to act in this capacity as is any other physician. Dr. Bailey said some of the physicians of the city, in event of a contemplated therapeutic abortion, send such patients to another physician without an opinion, for consultation and opinion.

Dr. Garrison moved that the physicians be requested to furnish the hospital in cases of death with diagnoses of the cause of death in accordance

with the United States Census Bureau, classification. Seconded by Dr. Felch, and carried.

Dr. Watkins moved that the diagnosis in each case be made in accordance with the recorded facts including the pathologist's report. Seconded by Dr. Holmes; discussed by Drs. Vivian, Greer Mills, Watkins, Felch; Motion withdrawn.

Motion made by Dr. Vivian that the next meeting of the staff be in charge of the records committee for the specific purpose of facilitating more nearly correct diagnoses; Seconded by Dr. Watkins; carried unanimously. Adjourned.

Dr. Orville Harry Brown, sec'y.

The Medical and Surgical staff of the Arizona Deaconess Hospital met March 28, 8 p. m., at the hospital with the following in attendance: Watkins, Wilkinson, Brown (E.H.), Fattbert, Randolph, Smith, Couch, McIntyre, Bailey, Slaughter, Little, Vivian, Goodrich and Brown (O.H.) Dr. Geo. Goodrich, chairman, presided.

The reading of the minutes was dispensed with. Dr. Watkins, chairman of the Records Committee, discussed the records as follows:

The CASE HISTORIES should follow the following general outline:

1. Personal History, including present complaint, onset and course.
2. Past History.
3. Family History.
4. Habits, general and negative.
5. Venereal history, where it has a positive bearing on the case.
6. Menstrual and obstetrical history in the female.
7. PHYSICAL EXAMINATION, in anatomical order and by systems.
8. WORKING DIAGNOSIS.
9. Laboratory and x-ray reports.
10. PROGRESS NOTES, made by the attending physician at least every 48 hours in any acute illness or surgical case.
11. Description of operation and gross pathology, dictated to the historian or assistant at time of operation.
13. Pathologist's report.
14. SUMMARY of condition on discharge.
15. FINAL DIAGNOSIS Sheet.

The following MINIMUM DATA for each patient treated in the hospital must be furnished or secured, and kept on file.

- a. Identification by name or number.
- b. Name of physician or surgeon in charge.
- c. Personal history of the case relevant to the complaint.
- d. Physical Findings and Laboratory Findings.
- e. Diagnosis on which treatment is based.
- f. Important points in operation or steps in treatment.
- g. Preoperative diagnosis in surgical cases.
- h. Operative findings and postoperative diagnosis.
- i. Pathologist's report on tissues removed.
- j. Complications of convalescence.
- k. Follow-up records.
- l. In case of death autopsy findings, when obtainable.

The hospital historian secures and records the family history, past history and personal history of patient, with reference to the present complaint, unless the attending physician or surgeon prefers to do this himself.

Refusal by any member of the staff to give the historian the necessary aid in procuring data, or to fill out the records as required, shall be reported to the Records Committee. This committee will make every effort in a friendly way to secure the coopera-

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tion of the attending physician; in the event of persistent refusal to cooperate, the attending physician shall be reported to the Medical Council.

Medical histories must be taken and physical examinations made not later than the first 48 hours after the patient has entered the hospital. The findings on physical examination are to be recorded by the attending physician.

In surgical cases, the essential history pertaining to the condition for which the patient is to be operated, together with the record of the physical examination, are to be entered before the patient is operated on, except that in emergency cases, this information may be dictated by the surgeon before or during the operation.

In all surgical cases, the surgeon shall, prior to the operation, record the diagnosis on which his treatment is based.

During, or at the close of each operation, a description of the pathological findings and of the operation shall be recorded by the surgeon, together with a postoperative diagnosis based on the gross pathology.

A complete diagnosis, including complications as well as principal disease must be entered on the final diagnosis sheet of each case record. It shall be the duty of the physician or surgeon to examine the case record and sign the final diagnosis record before the patient is discharged from the hospital.

(The above are the "Staff Rules" adopted by the staff about a year ago.)

This history (No. 412), I wish to present as a good history worthy of imitation. It contains the minimum data in fairly complete form, and I want to go over these records seriatim.

1. The patient's admission sheet, with the name of patient, address, and name of physician in charge is, of course, the business office record of the hospital.

2. Personal history of the patient, taken by the hospital historian or interne. The working diagnosis of this case was "Bunion of left great toe." Yet, the personal history was taken in some detail, as it should have been, as follows:

1. Measles and chickenpox in childhood with good recovery; mumps later, with good recovery. Operated 20 years ago for gastric abscess and fibroid; digestion has been good since. Patient has had sugar in the urine; is normal now.

(Comment: There is a family history which yields one pertinent point, sugar in the urine. May have no general bearing; but sugar in the urine always has a bearing in surgery.)

F. H. Negative.

II. Present complaint of 15 years duration. Bunion developed and gradually got worse; she desires operation to avoid more trouble.

The Physical Examination sheet is filled out by the attending surgeon, as follows:

"Patient is very thin and sallow color.

Head negative.

Chest negative.

Heart negative. (Something should have been said of the cardio-vascular system.)

Abdomen negative.

The great toe is deflected toward outer side and impinges on little toes to such an extent as to make them sore from pressure. There is tenderness and thickening over the head of the first metatarsal bone."

(Comment: It lends one confidence to read this record, that this surgeon really is basing his statements on examination by himself,—when he says the chest, heart and abdomen are negative. It goes without saying that no surgeon has any right whatever operating for bunion or anything else, without having that certain knowledge that there are

no physical signs of lung disease or heart disease and saying so, or recording his knowledge of whatever lesions there may be present. And when the record shows no recorded data about the chest or heart we have every right to conclude that the surgeon knew nothing about the condition of those organs and has not examined them.)

Pre-operative diagnosis is entered, and the following description of the operation:

Findings: "There was considerable thickening of bone over inner surface of metatarsal head; also of the overlying connective tissue, and extreme deflection of great toe towards the outside."

What was done? "Free incision of skin; incision of joint capsule on inner and upper sides and resection of the whole head of the first metatarsal bone. Capsule was sutured after rounding the internal edge of the bone to fit joint surface of first phalanx."

The same scrupulous care is taken in filling out the PROGRESS RECORD:

3-17. "Feeling well; no pain in foot but tender.

3-19. "Some pain until 10 p. m. last night; slept well all night and has no pain today."

3-20. "Feeling well; clips removed, and dressings reapplied. May go home today."

Urine and blood reports are of no interest, except that the absence of sugar, acetone and diacetic acid were probably noted by this surgeon.

When it came time to fill out the final SUMMARY SHEET, with diagnoses, etc. this was also done by the surgeon.

COMMENT: This history is offered for careful consideration. This comparatively unimportant

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lesion of a bunion was handled as carefully and with as much detail as most of the major surgical cases are recorded in this hospital. This is no exceptional instance with this particular surgeon; he records all of his cases with the same care and the same attention to exactness. We do not say that he is the only one of the staff members who does it,—in fact we know he is not the only surgeon who makes careful records. But we do say this, that when we went to the Record Clerk for a record to use as a pattern,—we knew without any doubt that when we asked for a record by Dr. So-and-So, we would get one properly filled out from start to finish.

So we simply asked for the last Clinical Record turned in by this doctor, and got this one about the bunion and used the pattern to measure these others by.

Now, we will pass to the consideration of other records of really serious conditions, and see wherein they fail to measure up to this one on the bunion.

Case No. 352: Patient's personal history is, as usual, admirably well presented. It contains the usual amount of what we like to call irrelevant material.

I want to say in this connection, however, that this apparently irrelevant material is likely to contain information which refers to the case in hand. It is not safe for the doctor in charge, when he takes the history, to decide at that stage of the investigation, that certain items are going to have no bearing on the case. He might be able to decide it later on, but he cannot safely leave out any item of importance in the past history, at the time he takes the history.

Therefore, the items that this patient had whooping cough, measles, mumps and chickenpox when a child are entirely relevant and should be put down in any properly taken history. This refers to the other facts in the past and family history.

With regard to the present complaint; the description of the complaint should always be such that presumptive diagnosis can be made from the symptoms described. So, listen to this:

"During past winter has had five or six attacks of abdominal pain, three or four during the past month; the last severe attack night of admission, when she was doubled up with pain. Area over appendix "exquisitely tender." Nauseated and vomiting; bowels constipated."

(COMMENT: This description lacks several desirable points. Whether the pain was continuous over a certain period of time, and how long it would last, whether it was a cramp-like pain; whether it was in one spot, or radiated; whether it would leave soreness behind or not; what relation it bore to meals and the effect of eating on the pain; whether it was worse in day or night; whether it was accompanied by jaundice, distension or urinary changes; what relation it bore to respiration, etc.)

With a presumptive diagnosis of appendix involvement in mind, several things would be expected in the physical examination. The doctor has let his pen slip and wrote "acute appendicitis" under the heading of physical examination where as he no doubt intended to write it up under "working diagnosis."

If we reduce that dislocated entry, we have a perfectly clean sheet under "physical findings," to put down whatever we like.

With a pain which "doubles her up" and history of recurrent attacks of this pain, we must have an examination of chest, cardiovascular system, abdomen and genito-urinary system.

If the chest is entirely negative, and the heart is entirely negative, we must have certain positive

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findings before the diagnosis of acute appendicitis is justified.

According to nurse's notation, there was severe abdominal pain; and abdomen was quite distended. Pulse and temperature prior to operation are not recorded. There was no blood or urine analysis; if these were done outside of the hospital, they should have been recorded, as should have the findings of the examination made outside of the hospital.

There should be recorded here the findings with reference to: (1) Pain and tenderness; (2) rigidity; (3) temperature; (4) blood and urine findings. Personal history already records nausea and vomiting.

There is a preoperative diagnosis of acute appendix by the surgeon. After operation, he revises this to subacute appendix. If it was subacute appendix, the necessity for the emergency of operating within an hour of entering the hospital disappears, and we have reason to question the whole diagnosis. The pain which doubled her up, the area of "exquisite tenderness," the abdominal distension, are symptoms of some acute condition, and not of a subacute appendix disease. Then when we see the pathologist's report of an appendix with sharp curves and irregular dilations, and marked fibrosis of walls with atrophy of mucosa,—and absence of inflammatory infiltration,—in other words a chronic appendix picture, we still further question the relation between the appendix and the symptoms.

Second day after operation, this patient shows in the urine trace of albumin, acetone and diacetic and 20 to 30 pus cells per field. We would still more like to know what the findings were before operation.

She recovered uneventfully and left the hospital a week after the operation. She had, however, recovered from several similar attacks, and we cannot say at this time that the removal of this appendix has removed the essential pathology in this case.

On the face of the record, we would certainly wish to look further for the cause of the symptoms she was suffering from when she entered the hospital.

Case No. 1570 is interesting. History is good on this case.

History suggests tuberculosis or some chest infection. There is history of some persistent or chronic abdominal lesion. It would require a very careful analysis of the "indigestion" to differentiate between the various causes of abdominal distress. Attacks of pain which last a few days and then go away entirely without any special treatment, are usually not due to ulcer.

The physical examination is not recorded, and it should be here to show why the diagnosis of acute appendicitis was settled upon, in preference to pelvic infection like pus tubes, or perforated ulcer, etc. The diagnosis was proven by operation, but the physical signs on which the diagnosis was arrived at should be on the record, before the operation, according to our rules, and in emergency cases should be recorded as soon as possible.

Case 309: Case of acute osteomyelitis. The excellent history of the illness made by Miss Kettlewell "adds verisimilitude to an otherwise bald and uninteresting narrative" so far as this record goes. It enables us to understand the case and to criticize the delay in operating. Diagnosed acute osteomyelitis on the 23rd, it was not operated until the 25th. It is safer to wait 48 hours in acute appendicitis than it is in acute osteomyelitis.

Dr. Watkins said that the most serious criticism in the records is the lack of physical findings. The doctor may say that he has made sufficient examina-



This Letter Set Him To Thinking

"Dear Sir:

I represent Mrs. ———, who is the mother of Mrs. ———, 3307 N. Albany Ave. Her daughter informs me that Mrs. ——— was injured in an accident January 27th, 1923, caused from a fall.

Mrs. ——— advises me that you started treating her mother for a bruise, that no x-ray was taken and that you continued to treat her up to and including February 27th, 1923. She then called a Dr. ——— to examine her mother's injuries, her mother at that time being in great pain, and Dr. ——— ordered her to a hospital, where an x-ray was taken and showed a fracture. On account of neglect on your part, the injury became very serious, and after the setting of the fracture Mrs. ——— was compelled to and did remain in bed for several weeks, and up to the present time has not completely recovered from the injury.

In view of the above circumstances, would you kindly let me know what your intentions are in this matter, in the way of repaying and compensating this woman for your alleged carelessness and neglect in treating her.

Yours truly,
Attorney-at-law.

And Then We Received This

"Gentlemen:

For some months I have been receiving literature from your company offering to sell me protection against malpractice charges and damage suits. I put this off too long; for I have a suit filed against me.

However, it is not too late to take protection against others that might be filed.

Yours very truly,

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tion on which he bases his diagnosis and it is no business of any other person; but if we are to keep records for the sake of making hospital records complete, and this is desirable, we should make records of examinations in detail.

Dr. McIntyre asked if a patient comes in with a broken bone and everything else negative is it not all right simply to describe the lesion and note everything else negative.

Dr. Watkins replied that if the records were made by system it indicated that their examination had been made.

Dr. Goodrich said that Dr. Cassidy made the point that in every operation the chest findings especially should be recorded.

Dr. Couch reported a case in which the examination showed negative findings except for the asthmatic rales and a small mass above clavicle; an x-ray examination revealed cancer involving the right lung.

Dr. Goodrich said the problem of keeping records in a hospital of this sort is a serious one. In a large hospital there is plenty of interne help to make the physical examinations and to keep the progress records. In some places there are stenographers to which the physician or surgeon can dictate the findings.

Dr. Smith said the patient is paying for the constructive thought and skill of a competent man. The interne compares to the "fuzzytail" of the range. The interne's examination is valuable to the interne. The patient pays his physician to be a physician and not to be a filing clerk or a stenographer. The keeping of record helps the patient to get well, but the physician who is busy, doing big things, does not have time to do the detail of the records. There will always be trouble in getting the clerical work in the smaller hospitals where there is lack of trained help.

He said he keeps records but he dictates all and signs only with a rubber stamp. The hospital should have clerical help well trained and this will solve the problem of hospital records.

His daily routine is as follows.

He visits each morning the hospital and outside patients and makes mental notes. Each patient seen during the day has a few memoranda dictated; at the end of the day the stenographer is called in and each patient's record is dictated, taken up in rotation beginning with those seen first in the day. A carbon copy of each record is kept and for those patients in the hospital the carbon copy is deposited with the hospital records.

Dr. Slaughter said that she wished to be of help wherever possible and that she is willing to take the dictation of the physical examination.

Adjourned.

ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING

Regular April meeting was held Saturday evening, April 11th, in the lecture room, Dr. Win Wylie, chairman, presiding. Twenty members and two Sisters were present. Three cases were discussed, as follows:

CASE I

First entry Jan. 29th, 1924. Male, age 40, single, mechanic. Had his appendix removed 15 years ago. Has an old healed pulmonary tuberculosis. History said to have no bearing on the condition for which he entered the hospital which was a direct right inguinal hernia. This was repaired and circumcision done, with uneventful recovery.

Second entry Feb. 5th, 1925.

No previous history recorded.

Present Complaint: Physician called morning of Feb. 5th and was told that patient the day before had three black, formed shiny stools. Physician states that "because of his gall-bladder history" (no previous mention of this in the record), he thought this might be due to tarry bile. Patient stated that the day before he had a fainting spell and had to lie down at the garage; when seen by physician his pulse and temperature were normal and lips pink. The night before he took citrate of magnesia and vomited later, but no blood.

At 3:30 P. M., of the 5th, patient's sister called and said he had fainted twice in the bath-room;



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physician found him with temp. of 97, pulse 87, lips blue, skin pale, pulse small but not thready; no pain but slight tenderness at duodenal area, and entire abdominal musculature in state of tonic contraction. Fearing intussusception, he was sent to the hospital and fluoroscopy called for with barium enema. This showed normal filling of colon and intussusception was excluded. No distended loops of small bowel could be seen, which made volvulus and ileus unlikely. Shortly after the enema he vomited, first clear water, then a small clot of rather dark blood, then watery vomitus tinged with blood, then another clot similar to the first, and finally a small amount of watery vomitus slightly more stained, but no bile. Opinion of roentgenologist (Dr. Mills) was that there was ulcer in region of pylorus, and this was probably the origin of the blood. Barium meal for localization of ulcer was not advised at this time.

It was decided, after further consultation, to wait developments rather than operate at once, since there were no symptoms of perforation; so ice-bag on epigastrium was ordered; water shut off completely; no food; milk of magnesia one teaspoonful per hour.

On 6th condition was better; he had some nausea during night, with slight vomiting, but no blood. Small amount of water was allowed.

Blood findings were interesting. On the 6th there were 2,310,000 reds, Hbg. 55%, whites 9,600; polychromatophilia, microcytes, macrocytes and occasional normoblasts present.

On 8th, reds 2,570,000, Hbg. 40 (index 0.8); many macrocytes, marked polychromatophilia; some normoblasts, whites 11,600.

On 10th, reds 2,570,000, Hbg. 45 (index 0.9); abnormal cells as above, whites 7,200.

On 13th, reds 3,020,000, Hbg. 55, no abnormal reds; whites 5,100.

On 15th, reds, 3,010,000, Hbg. 60, no abnormal reds.

On 16th, reds 3,110,000, Hbg. 60, no abnormal reds.

The first blood examination strongly suggested some pernicious blood condition, but subsequent examinations showed this to be only a very severe acute anemia from hemorrhage.

On Feb. 11th, barium meal examination was done, which showed "deformity involving the duodenum and pylorus, which has caused the first portion of the duodenum to be drawn backward, so that it lies behind the pylorus and can be seen only when the patient is rotated so as to bring it into view. There is gall bladder indentation into the outer side of the duodenum and in the upper inner angle of the first portion of duodenum, there is definite filling defect and deformity which is characteristic of ulcer"

Conclusions from x-ray examination were chronic gall-bladder disease with duodenal ulcer and adhesions between the two structures.

DR. WILLARD SMITH:—Statement is made that no previous mention was made of the gall-bladder history. Since I was this patient's physician and am held responsible for any statements recorded about him by me, and since he is brought into the hospital for treatment and not a subject for literary pastime, I put into the history those things which I considered should go there. The business of the hospital is to serve the patient and it is nobody's business what the previous history was, when I say that it has no bearing on the case. Gall-bladder history was left out purposely, because I was responsible for this patient and it was nobody's business but mine.

At operation, the usual incision was made and gall-bladder was removed; adhesions were so dense that they had to be separated with scissors. After the gall-bladder was removed, could uncover

the duodenum, so that the site of the ulcer could be seen, and there was a fold of lesser omentum plastered down right where the surgeon would want to sew a fold of the greater omentum; so it was left there. Then did a regular gastro-enterostomy. He has gotten along very well, has no pain, is back at work and can eat anything except liver. Blood examination a few days ago showed blood back to normal. Recently had a barium meal examination and Dr. Watkins made comment that as no barium could be forced into the duodenum and the stomach emptied in six hours, there is no reason to think that stomach contents pass into the duodenum.

The peculiar thing about this case was that the jejunum from the ligament of Trietz down for about fifteen inches down was dilated to the size of the colon and then without anything in the way of obstruction, kink, band or adhesion, the jejunum assumed its normal ribbon diameter and ribbon like appearance. The anastomosis was made directly into that dilated portion. The recent x-ray examination showed the jejunum still dilated. It apparently is causing no trouble, and I know no more about the cause of this anomaly than I did.

DR. WATKINS:—I considered this a very excellent history, and in sending out the abstracts, commented on what seemed to me like omissions. Dr. Smith probably had reasons sufficient for him for these omissions, but from the standpoint of a clinical history, read by some one not familiar with the case, they raised questions. Here is a patient who proved to have a bleeding duodenal ulcer, and so far as the recorded history goes, the first suspicion of ulcer was when the patient nearly bled to death. We naturally would like to know whether this is really one of those cases who show their first evidence of ulcer in hemorrhage, or is it simply an omission of the known ulcer history from the record.

The first examination by Dr. Mills was for the purpose of detecting evidences of acute obstruction. The second x-ray was for ulcer and gall-bladder disease, and the findings at operation were almost exactly as described in the x-ray report. The most recent x-ray examination showed the gastro-enterostomy opening at the most dependent portion of the stomach, where it should be.

The blood findings seemed, at first, to indicate a pernicious anemia, but the subsequent findings proved this to be simply a very high grade secondary anemia. The matter of carbon monoxide poisoning came into our minds at first, since this patient is an auto mechanic, and this question of acute or chronic carbon monoxide poisoning is still an important one, but probably should not be entered into tonight.

CASE II

Patient's past history is not recorded with any accuracy, and it proved to be one of those cases in which the past history, accurately secured and recorded, would now be very valuable for all parties interested.

"For past three years has been troubled occasionally with burning and irritation on passing urine. For the last six months, burning has increased and there is a marked frequency in voiding urine. No backache." Patient stated to one of consultants that the symptom which sent him to the doctor was a pain in back when riding horseback.

The last week in February, urine was sent by an out-of-town doctor to the Pathological Laboratory for a vaccine to treat a pyelitis. Routine examination of this showed much pus, no growth on culture, but tubercle bacilli on stained smear. This was confirmed by another specimen, which was inoculated into guineapig also.

March 1st patient was referred to Phoenix for cystoscopy and determination of kidney integrity.

Pyelography showed normal kidney pelvis and ureter on left. On the right there was typical densities of abscess pockets in kidney, with irregularities in calyces which is characteristic of tuberculosis.

Tubercle bacilli and many pus cells showed in urine from right ureter, with normal urine from left side.

This looked like a very favorable case for surgical treatment, but it was noted that patient had temperature of 100 on entering hospital, rising to 104 that afternoon, pulse rising with it.

Following cystoscopy and drainage of kidney this did not improve, and patient was evidently a much sicker man than he had admitted being.

Further investigation, including radiography of the chest, showed a well established miliary tuberculosis of the lungs, probably of two months or more standing. Patient continued to loose ground rapidly and died in the hospital on March 25th.

Consultant (Dr. Holmes) secured some additional information to the history, but at time of consultation patient was stuporous, and accurate answers could not be elicited. The history of burning and frequency was found to go back three years, but has been much worse during past three months. He has had a slight cough, without expectoration, for a number of months; his temperature was high on admission to hospital, but was not taken prior to that time.

Chest examination was practically negative with a few fine and inconstant rales over the chest. Only radiography showed the real condition in the lungs.

Blood chemistry showed NPN 67 mgm., urea 40 mgm., sugar .17%; cholesterol, .09%.

This rather high grade of retention in the blood would account for some of the stupor, although miliary tuberculosis, which would involve the meninges, would account for this also.

DR. HOLMES:—I was called in consultation in this case, after the diagnosis had been made from the x-ray. I tried to find physical signs, but could not detect anything which would have suggested miliary tuberculosis, or any other tuberculosis. Do not think he had any old tuberculosis of the lungs. Do believe that he had a tuberculosis of the kidney for years, because he had polyuria, burning and all the things that go with kidney involvement. With regard to the probable length of time that this lung condition had existed. It became an important question, because it probably is possible to precipitate a miliary infection by manipulations upon the kidneys. The stage of development, however, was almost certainly several weeks old. When Dr. Giese was here, he said that it would require several weeks to show on the x-ray.

DR. WATKINS:—The record shows that this patient arrived in the hospital with a high temperature. It went higher in the afternoon, following the pyelography, but the next day, the record at noon was exactly what it was on his arrival in the hospital, so that there is no reason to think that the pyelography had any effect on the temperature.

The pyelogram shows a beautiful picture of tuberculous pockets in the kidney, and the radiograph of the chest shows the miliary fine speckling well established and quite dense, evidently of several weeks standing.

CASE III.

Age 41, married, physician. Came to Phoenix for diagnosis of upper quadrant pathology, suspected of being gall-bladder disease.

Complaint has been present about eight years; has been intermittent, usually being precipitated

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by some indiscretion in diet. Was noticed first in France, after taking too much vin rouge. Thereafter it recurred at intervals, with pain and distress after eating. Could be relieved by soda or by abstinence from food, or careful dieting. Had one hemorrhage last June from bowels.

Patient came to Phoenix for duodenal lavage and examination by visualization method of gall-bladder.

Ordinary x-ray showed some irregularity in the duodenal cap, and no gall bladder outline.

After dye injection, gall-bladder was very well outlined, even though patient is somewhat fat, and with barium meal, the relation between gall-bladder and duodenum could be studied. It was then seen that there was a defect in the duodenum which bore no relation to gall-bladder pressure. The visualized gall-bladder was normal in size, emptied its contents within normal time.

Attempt to introduce duodenal tube was not successful, and was not again tried, as the diagnosis of duodenal ulcer was so apparent.

DR. WATKINS:—The first case discussed and this Case No. 3 illustrate two types of gall-bladder examination. In the first case, it was possible to be practically certain of chronic gall-bladder disease, without anything more than the usual barium meal. It is not for that type of case that visualization of the gall-bladder by dye injection is indicated. In the third case, however, patient had been examined elsewhere by competent men and no definite conclusion arrived at. We were unable to decide whether his gall-bladder was involved or not. It was important for him to have this matter decided. His history indicated duodenal ulcer; his symptoms suggested accompanying gall-bladder involvement. If he should prove to have duodenal ulcer plus chronic cholecystitis, he would be a surgical case like the

first patient; if he has no gall-bladder disease and ulcer only, he is a medical case.

Having exhausted our usual methods and still being uncertain, the gall-bladder was visualized by the dye injection, using Carman's technic. It is necessary to adhere strictly to the technic, if unpleasant reactions are to be avoided. Five c. c. of the dye solution were injected; after ten minutes, 15 c.c. were injected and after thirty minutes the remaining 20 c. c. No reaction of any sort occurred. Four hours later, the gall-bladder was visible; at ten hours it was plainly seen; at 24 hours it had slightly diminished and barium meal was not given. The duodenal cap was demonstrably not adherent to the gallbladder, and niche of duodenal ulcer plainly seen. The gall-bladder outline became smaller and disappeared at 36 hours.

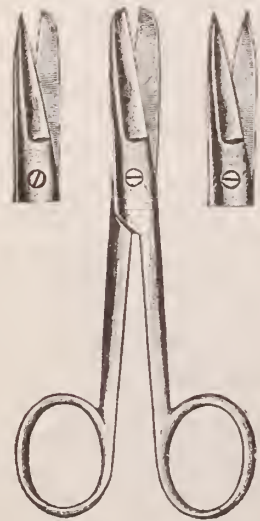
We were now satisfied that the gall-bladder was normal and the essential lesion was in the duodenum. (Films were shown.)

DR. SWEET:—Do not think that this method is free from danger. Graham is not using it so much, and there is much less enthusiasm among surgeons over the method. Some severe reactions have resulted, and it would seem that a simple exploratory operation under local anesthesia would be about as easy and tell a lot more.

DR. WATKINS:—The method is not indicated where the conditions can be demonstrated by the usual methods employed in x-raying the gastrointestinal tract, but it does seem that it would be preferable to an exploratory laparotomy. If the technic of Carman is adhered to, using the preliminary injection, and injection given very gradually, reactions can be avoided.

Dr. Carson was given fifteen minutes which remained to discuss some of the newer developments and ideas in anesthesia. He discussed the

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advantages and disadvantages of ethylene; how to avoid the danger of explosions; the necessity for carrying the patient through on as little anesthesia as possible. His talk impressed the members with the rapid developments in the science of anesthesia; that there is much more to this specialty of medicine than just pouring an unknown quantity of anesthesia into a patient whose susceptibility and ability to handle the drug are also unknown. Anesthesia has developed into a highly specialized department of medicine, requiring an accurate knowledge of the patient's condition, of the chemistry and physiological effects of the anesthetics, of the anatomical and functional reactions in the patient.

Meeting adjourned at ten o'clock.

W. WARNER WATKINS, Sec'y.

ONLY CASUALTY OF THE BISBEE MEETING

The Arizona State meeting was carried through to a successful conclusion, without serious mishaps, the only recorded casualty being the wounds inflicted upon Dr. Harbridge in the badger fight. We quote from the Bisbee paper of the day following the Agua Prieta gathering:

"The services of Dr. William Allen Pusey, noted skin specialist of Chicago and president of the American Medical Society were needed to patch up the wounds inflicted on the arms of Dr. D. F. Harbridge, secretary of the Arizona State Medical society, by the badger which fought a Douglas bulldog at the smoker held in Agua Prieta on Thursday night. Dr. Harbridge pulled the badger out from under the barrel and the frightened animal jumped into his arms to escape the bloodthirsty dog, inflicting numerous scratches and bites.

The fight was a wonderful success, with the bulldog emerging victorious after a hard tussle, but those who wagered on the cat declared that they did not receive a square deal because the animal had spent its strength on Dr. Harbridge, who made things right by buying every one in the social club a drink.

MARICOPA COUNTY MEDICAL SOCIETY

Meeting April 4th.

The meeting was held in the basement of the Ellis building. The dinner that preceded the regular meeting was first class until somebody added salt to the strawberry shortcake. There were no casualties.

The secretary read a communication from the Pima County Medical Society concerning the admissibility of privileged communications in evidence, pointing out that it worked a hardship on physicians who could get no help from brother physicians. The Pima County Medical Society had acted favorably on the resolution and asked that it be presented to the delegates to the state meeting for their consideration. After some discussion and some points on the other side of the question the Maricopa Society concurred with the Pima County Society and instructed the secretary to have the matter properly presented at the Bisbee meeting.

The president called attention to the coming state meeting and urged a good attendance. Delegates from Maricopa county were appointed.

The president called attention to the fact that Dr. Pusey was doing us a great honor to come to this state, and urged us to be present so that we could do him honor. Dr. Harbridge was asked by the president to explain just what he offered in entertainment. Dr. Harbridge told of the plan of the Chamber of Commerce working through the Merchants' and Manufacturers' Association to show Dr. Pusey the valley and Mormon Flat Dam and Lake. On Wednesday, the 15th, Dr. Pusey was to hold an informal reception at the Adams Hotel when the physicians of the county and state could meet him.

After the reception there was to be a luncheon in his honor. After some discussion it was decided that the wives of doctors and the dental profession and their wives be invited to both.

We were fortunate to have Dr. Charles O. Giese of Colorado Springs, to address us. Dr. Giese had charge for nine years of the Woodman Sanitarium at Woodman, Colorado, and is now in charge of the Printer's Home in Colorado Springs. He brought to us the wealth of a vast experience in chest diseases. He chose for his topic, "Diseases of the Mediastinum."

His talk was illustrated very well by plates and the subject was presented from the standpoint of clinical cases with a fuller discussion of the phases brought up. Dr. Giese made it plain that often negative front and back plates are misleading to the physician and roentgenologists alike, and that oblique plates should be resorted to in all of those cases which show clinical chest signs and no roentgen interpretation. If mediastinal disease is seen or if lesions are seen originating in the mediastinum it is well also to get lateral plates.

He called attention to the fact that very often there are no clinical signs or uninterpreted signs in the chest that the x-ray clears up readily. He said also that conversely clinical signs are present that represent disease and the x-ray was placed on the defensive by negative pictures. He told of internes and house physicians not attempting a clinical diagnosis, but slipping patients down the side way so as to get an x-ray picture and make their diagnosis from that. Very often they were badly mistaken and their clinical touch suffered. He always makes a clinical interpretation before the picture is taken. He maintains that the x-ray will more often err than the clinician—that is, the interpretation of the picture will err. He showed a picture where there had been a spontaneous lung collapse with very marked dyspnoea and the fear that the patient would succumb. Three suction placed the lung out in position and negative pressure recorded, and the patient was free of all symptoms. He favors air collapse above all other methods in one sided cases, and is very chary to do extensive thoracoplasties unless the attempt to collapse is exhausted. After many years the lung will recover and expand on again giving negative pressure, with the diseased parts fibrosed and the good lung functioning. The use of medicaments when syphilis was also present with tuberculosis was discussed at some length. It was a matter of judgment always and some cases lighted up unless care was used. He showed a case where a small tumor in a bronchus caused death by a bronchial spasm or irritation, which explains some cases of death and collapse unexplained at autopsy. Collapse would probably save these cases if found out soon enough. Altogether the paper was very worth while, and a good attendance helped matters out.

After some questions and a very little discussion the president thanked Dr. Giese for coming to us and for his masterly paper.

There being no further business the meeting was adjourned. The symposium on Scarlet Fever was again postponed.

R. J. STROUD, Secretary.

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SURGERY OF THE TUBERCULOUS

J. D. BROOKS, M. D., Chief of Surgical Service, U. S. V. B. Hospital, No. 50,
FORT WHIPPLE, ARIZONA

AND
C. E. YOUNT, M. D., F. A. C. S., Surgical Consultant,
PRESCOTT, ARIZONA

The individual suffering from pulmonary tuberculosis has no immunity from those surgical conditions to which the non-tuberculous person is subjected; indeed he has that added handicap of decreased resistance to all infections, which accompanies a chronic debilitating disease, and, in addition, has the susceptibility to tuberculous complications which may demand surgical treatment. This general lack of resistance has, in the past, made the tuberculous patient a dubious surgical risk, and, even under our present knowledge and skill, he still remains a problem that must be solved in each individual case. Of course, in those conditions in which his life is threatened one must take chances and operate regardless of what the general physical condition may be; for instance, an acute suppurating appendix must be removed, a perforating gastric ulcer demands immediate surgical intervention, an incarcerated hernia must be released, and it is often surprising how well these cases of far advanced pulmonary tuberculosis come through a major operation, especially when the operation has been under local anesthesia, gas-ether inhalation or by the colonic method of Gwathmy. Those conditions which are not imperative are often benefited by surgery and the patient is thereby assisted in his battle for health and his recovery from tuberculosis hastened and made more certain.

It has been our experience that the psych'ic effect of even a minor surgical procedure has often helped a patient to make a better and more determined effort to "chase the cure." The confinement in bed for several weeks following a surgical operation has brought marked improvement

in a number of our cases. This is even more apparent in those cases of bone tuberculosis, where fixation is employed over longer periods of time. Some of our spinal caries cases have cleared up their pulmonary lesions entirely while receiving treatment for their spinal condition.

We believe that the surgeon dealing with the tuberculous must use every means known to modern science to assist him both in diagnosis and treatment and not rely entirely on the knife, and he must also exercise careful judgment in the selection of those cases in which he decides an operation is to be advised and then get his patient into as favorable physical condition as possible. He must study the patient and decide what the probable effect of the surgical procedure will be, not only on the condition for which it is being done, but also on the tuberculous lesion and the mental condition of the patient.

It is our custom to study the patient over a longer or shorter period of time, depending of course on the urgency of the surgical lesion, to call upon the laboratory, x-ray specialists and internists to give us all the information obtainable regarding the pathological conditions that may be present, and then to make our decision as to when to operate. We believe that to get the best results in these cases requires special surgical skill, which can only be acquired by experience in dealing with this class of patients. We believe that we can help them in their fight by removing obstacles in the form of surgical pathologies and that while the tuberculous is not to be considered from a surgical view on the same plane as the non-tubercu-

lous, a majority of all surgical conditions may be relieved if the proper methods are followed.

In the review of the cases that follow nothing new is claimed and they are only tabulated to show what we have done in attempting to assist these tuberculous patients through surgery. We have not done any bone operations because we believe better results are to be obtained from fixation and heliotherapy and the use of the artificial light when sunshine cannot be used. We have not performed any plastic operations on the chest, such as thoracoplastics, for in spite of the brilliant operations of Kellar and Hedblom, it is our opinion that active pulmonary tuberculosis is a contraindication for such procedures and that our results from simple aspirations and thoracotomies in cases of empyemas are as good as those reported following the more extensive procedures. Likewise in tuberculous abscess of the lungs, the histopathology is such that compression or obliteration of the abscess cavity is often a physical impossibility.

In our former report we presented one hundred and fifty cases but did not include "far advanced C" class, or the so-called terminal cases, because, while these may and frequently do require surgery, their lung conditions being probably hopeless, the ultimate result would be death from pulmonary tuberculosis, regardless of the surgery.

In this report we include that group and have some interesting observations even in this seemingly hopeless class. Since our last report we have operated two hundred and seventy-five cases, and including our previous report, make four hundred and twenty-five tuberculous patients operated upon, viz:

Herniotomy	17	Hemorrhoidectomy	51
Abscess, psoas	6	Herniotomy	17
Abscess, tuberculous	10	Laparotomy	5
Amputation	2	Nephrectomy	1
Appendectomy	108	Orchidectomy	8
Cholecystotomy	1	Tendon suture	1
Circumcision	17	Prolapse of rectum	1
Dilatation and curettage	5	Ruptured tubal pregnancy	1
Entrostomy	1	Thoracotomy	10
Epididymotomy	7	Tumors excised	10
Excision of varicose veins	4	Wound closure	1
Excision of bone	2	Gastro-enterostomy	1
Fistula in ano	5		

The mortality in this group of cases was

two or .72% and both of these occurred in the appendectomies and in patients whose tuberculosis was considered arrested or of no clinical importance. These cases were of the fulminating gangrenous type and the peritonitis already started was generalized by the operation. One of these cases was a ruptured appendix and an enterolith as large as a marble was found lying free in the abdomen at operation. The other was a retrocecal gangrenous appendix.

In the "far advanced C" class we have had quite a number who have made marked improvement, due entirely to their surgery. One case of tuberculous abscess of the kidney, who was receiving four grains of morphine daily, was relieved of his pain from both kidney and bladder and his morphine discontinued. Another with abscess of the lung and empyema was operated against the advice of the internist, but at the request of the patient, and he is now so much improved that we would rate him as a "far advanced A" class, and he is now at home attending to his business, running a drug store after two years.

The ruptured tubal pregnancy not only recovered from her operation, but her lung condition is much improved.

We are inclined to agree with *Major Nelson A. Myll, at Fitzsimmons General Hospital, in his observation on the treatment of tuberculous epididymitis and orchitis, and lately have refrained from operating these cases, giving them the benefit of rest and heliotherapy.

In the appendectomies, except the acute cases, there were histories of repeated attacks and the gastro-intestinal symptoms were such that they sought relief from surgery. It has been our observation that the results have been most satisfactory and they are among our most grateful patients.

We have endeavored to surround these substandard risks with every safeguard. We have constantly striven to adapt the anesthetic and the operation to the patient. As our experience increases in this class of patients we favor the use of local anesthesia with extensive nerve block because it offers the greatest margin of safety. However its range of usefulness is in direct proportion to the ability to master the technic of nerve block. We believe the preoperative administration of morphine and hyoscine assists greatly in overcoming the nervousness of the patient and psychic shock.

*Heliotherapy in Treatment of Genito-Urinary Tuberculosis. J. A. M. A. Dec. 6, 1924.

PULMONARY TUBERCULOSIS COMPLICATED BY ASTHMA

E. W. PHILLIPS, M. D., St. Luke's Home, Phoenix, Arizona

Those of us who treat diseases of the respiratory tract—and what physician in Arizona does not—get most of our clinical material second-hand. This region has long been a court of appeal for the defeated pulmonary invalid, and we are expected to supplement the climate in bringing relief to a large number of chronic asthmatics in various stages of disrepair. All of these have met with failure in their treatment elsewhere; many have emphysema and bronchiectasis; not a few are tuberculous. It is with the difficult problem presented by this last group that this paper is concerned.

It must be regarded as a preliminary communication. Partly because the work is still incomplete, partly because the mass of material accumulated in five years of interrupted study cannot properly be dealt with in the allotted time, I shall here present only an outline of the subject, an analysis of a few cases, and certain tentative conclusions of a clinical nature.

The literature of this subject is scant and, for the most part, not helpful. The fact that in a certain baffling group of cases tuberculosis is attended by the symptom asthma has often been observed and recorded, but no adequate study of the connection has been made. Giffin¹ in 1911 reported three clear-cut cases of asthma and tuberculosis, and concluded that "in the diagnosis of asthma, then, it is essential (1) to examine the sputum carefully and without fail; (2) to avail one's self of the aid of the Roentgen rays, especially if early tuberculosis, on the one hand, or fibroid phthisis on the other, be suspected, for in these the sputum may be negative; (3) to appreciate that the examination of an asthmatic in reality imposes upon the physician the duty of carefully excluding tuberculosis." Pierson² in 1918, reported ten cases, in one of which the asthma was relieved by collapsing a badly diseased lung. Brown³ of Phoenix published an article in 1917; from the abstract it appears to have dealt largely with his non-passive expiration theory of the causation of asthma. While this theory has not met with general acceptance, whoever has studied the behavior of the chronic asthmatic must recognize the importance of the mechanical effect of coughing on the bronchial spasm.

Then the brilliant researches of the im-

munologists, with Walker and Cooke as their rival leaders, became generally known and held the attention of all who were interested in asthma. They accounted for from 50 to 75 per cent of the cases of asthma, and pointed out the way to their relief. No attempt to review this voluminous literature is in order here. It may be as well to mention, however, that Cooke and Vander Veer⁴ showed that the allergic constitution, the capacity to acquire sensitization to foreign proteins or allergens, is hereditary; Cooke⁵ demonstrated that drug idiosyncrasy is allergic; Miller and Raulston⁶ offered evidence that migraine is in all probability also an effect of sensitization.

But after eliminating the sensitized and therefore presumably curable asthmatics, there remains a large residue of those who react to notests, or at least to none which explain their symptoms. These patients are mostly those with chronic disease and pathologic changes in the bronchi. This group has been studied intensively. Focal infection, especially in the accessory sinuses, is found in some, and many of the later contributions are by the rhinologists. The patient whose sputum is found to contain tubercle bacilli, however, is usually referred at once to a specialist in tuberculosis or sent to a sanitarium.

He is received without enthusiasm. The work required for the relief of the tuberculous asthmatic is enormous, and too often fails of its end. Such a patient, with his noisy coughing and wheezing, his nocturnal seizures, his vagotonia and his neurotic trend, does not long remain in a sanitarium. The victim of a hybrid disease, unwelcome in either camp, is likely to fall back on adrenalin and the proprietaries; he will, if possible, try the effect of climatic change. The material for the study of asthma in the tuberculous is much more abundant here than in the large clinics of the eastern states.

I have records of the examination of a considerable number of tuberculous asthmatics. Some of these were seen in consultation, others were transients who were lost to sight, still others have been observed so recently that the outcome is not yet certain. This paper, however, is based on the analysis of the cases of fourteen patients with active tuberculosis complicated by asthma. These have been observed care-

fully over a considerable period of time, so that the results are known.

Their original records are bulky, for it was necessary to study each patient not only as a consumptive but as a chronic asthmatic. Thus, in taking the history, members of the patient's family were interrogated as well as the patient, and in some instances they also were examined. No effort was spared to determine accurately whether there had occurred, in the immediate family, asthma, hay fever or migraine. It was learned that eight of the fourteen patients had an allergic heredity; this includes two who had a family history of migraine and had themselves suffered from this disorder, which after the onset of tuberculosis had been replaced by asthma.

Each patient was carefully tested with a large number of substances, which, since Cooke's publication⁷ in 1922, has included house dust. Five of the fourteen patients, including three with allergic heredity, were found to be sensitized to inhaled proteins (pollens, dusts, animal emanations) and to have allergic symptoms when exposed thereto. One was also sensitized to certain foods. But it should be made clear that in no instance did these positive reactions explain the perennial asthma. The specific proteins caused rhinitis, or a seasonal increase in the chronic asthma, or both; but elimination of the offending proteins or desensitization thereto was carried out, without the least effect on the chronic asthmatic bronchitis. One patient who reacted to no protein test and whose family history showed no allergy, proved to be extremely sensitive to quinine. Thus it appears that of fourteen tuberculous asthmatics, eleven (including the two with migraine) had an allergic heredity, or were themselves sensitized, or both.

As to the tuberculosis, these patients had the routine thorough overhauling. The chest was examined repeatedly, and in every case, unless the patient's condition forbade a trip to the laboratory, x-ray films were made. The sputum was examined at regular intervals, and blood examination was made routinely. The findings may be summarized by stating that active tuberculosis was demonstrated in all but one case, and in this one the evidence, while not conclusive, points strongly to the existence of tuberculous disease. All but one of the patients had tubercle bacilli in the sputum; all but one (not the same individual) had one or more cavities in the lungs, eleven being interpreted as tuberculous cavities and the other two as bronchiectatic. The complement fixation test for tuberculosis

was done on eleven of the patients, and it was always positive. Chronic disease of the accessory sinuses was found in two cases. Two patients are classified, on the x-ray findings, as moderately advanced, the rest as advanced. The radiologic and laboratory work was for the most part, done by Dr. W. Warner Watkins and his associates of the Pathological Laboratory, to whom I am greatly indebted.

It may be objected that because advanced tuberculosis was present this entire work is worthless; that the dyspnea was mechanical, from narrowing and deformity of the bronchi, or from lack of functional lung tissue. As a matter of fact, the ten patients who had a fixed asthmatic habit and continual mild wheezing all had superimposed exacerbations typically asthmatic in character. It should be borne in mind that the finding of cavity with a moderate area of lung involvement advances the patient one stage in the accepted classification. Only one patient of this series had lesions so extensive that they might reasonably have caused mechanical difficulty of respiration, and his severe and typical attacks were temporarily relieved by adrenalin.

There were ten patients who, as described above, had chronic asthma and a firmly fixed asthmatic habit. Two of these were women in whom, at the change of life, tuberculosis and asthma appeared simultaneously. Artificial menopause by radiation relieved the asthma as though tuberculosis had not been present. Later, one recovered from tuberculosis, and the other was improving when an intercurrent disease ended her life. Of the others, four are dead of their mixed disease, one is living but has a grave prognosis, one has arrested tuberculosis with occasional mild asthma which does not prevent working, and two have, after prolonged treatment, sluggishly active phthisis and low grade asthma which flare up when the patients attempt to work. These figures are a sufficient commentary on the prognosis of the mixed disease when it is well established.

In the other four patients the asthmatic habit was not yet fixed, though all had chronic tuberculosis. Typical seizures were observed in three; the one attack of the fourth witnessed by the writer was not typical, but earlier ones had been pronounced asthmatic by a most competent observer. In all four, the attacks were separated by intervals of almost complete freedom; a large cavity which retained fluid was present; attacks seemed to be induced by discharge of the cavity content into the bronchi; and drainage of the cavity, either by

posture or by re-expansion of a partially collapsed lung, put an end to the asthma and in three of the four led to marked improvement in the patient's condition.

In eleven of the fourteen cases asthma had followed tuberculosis or had appeared coincidentally with it. In the remaining three the reverse was said to have been the case; but the lesions found in these were old, and considering how often the diagnosis of tuberculosis is missed, it is open to doubt that asthma was the forerunner of tuberculosis in any case of this series.

It was observed that the intensity of the asthma tended to vary directly with the activity of the tuberculosis. The matter of priority could not be decided. In five out of six cases in which the asthma was relieved by the establishment of cavity drainage or by the elimination of an endocrine factor, prompt improvement of the tuberculosis ensued. On the other hand, when one of those periods of intermittent increase of activity, so characteristic of advanced tuberculosis, took place, that patient's asthma presently became more troublesome. Clinically speaking, it seems probable that the relation between the tuberculosis and the asthma is one of mutual disadvantage.

This state of affairs furnished an indication for the treatment. Each patient received the usual hygienic treatment of tuberculosis, of which the principal element is rest. And since one who labors for breath cannot rest, every justifiable expedient was employed to control the asthma. Desensitization to pollens, as has been said, prevented the seasonal exacerbations but did not affect the basic condition. Artificial menopause relieved the two women at the climacteric. Postural drainage of the cavities gave brilliant results in two cases. It was employed in other cases, with lesser benefit. It is so simple to do that it is always worth a trial. The patient is taught to assume that attitude which, as shown by experiment, enables him to bring up his sputum with the least effort, and to hold this position for ten minutes four times daily. If there are cavities in both lungs, each side should be drained in turn. This can usually be accomplished by turning on the side or on the belly, perhaps with a pillow under the lower ribs. To invert the patient is seldom necessary, and if active tuberculosis is present it is not justifiable. Autogenous vaccines were used in nine cases; in two they conferred measurable relief, in the others their effect was doubtful. It was necessary to exercise great care in

the matter of dosage. In these cases an overdose of vaccine may not only bring on an acute attack of asthma, but it may excite the tuberculosis as well. Most of the patients used asthma powders or asthma cigarettes containing stramonium and salt-peter. No injurious effects were observed from these. Adrenalin was of course employed, but an effort (not always successful) was made to reserve it for the severe seizures. It was observed that those patients who gave it to themselves and took it freely, as a rule did badly. Morphine was not administered to any patient who had a gambling chance of recovery.

There remains to be discussed the question of why these patients had asthma, when a much greater number of the tuberculous with practically the same pathologic changes in their lungs are free from it. The occurrence of cavity in thirteen of the fourteen cases of this series must have some significance; the observation that fluid was retained in certain of these cavities probably has more; for a cavity retaining fluid is a good incubator for bacteria; also, proteins or their cleavage products can be absorbed through the cavity wall; and the discharge of the accumulated content of such a cavity into the bronchi must cause considerable irritation, particularly if the bronchial epithelium should happen to be sensitized to some constituent of the fluid so discharged.

Eleven of the fourteen patients had a potential or a demonstrated capacity for acquiring sensitization. If a sensitized bronchial mucosa is exposed to its allergen, asthma results; and if the allergen is continuously supplied, the asthma is chronic. We have seen that in the cases under discussion the asthma seemed to be secondary to the tuberculosis. Assuming that such an allergen did exist, it must then have been a product of the tuberculous disease, or of the secondary infection which accompanied it. The known toxic product of the tubercle bacillus is tuberculin, and the idea has occurred to several observers that tuberculin might be the sensitizing agent. Without entering into a complex and highly technical discussion, we may say at once that the weight of experimental evidence is against this view. Similarly, it was once held that the cell proteins of the pyogenic bacteria acted as allergens and so induced "bacterial" asthma. This theory enjoyed general credence because of the prominence of its author, but it has not worked in practice, and later studies have discredited it. If a sensitizing protein is produced in tuberculosis, its identity is still unknown.

This series is so small that the conjunction of undrained cavities and allergic constitution may be accidental. Certainly it is suggestive; but the study of a much larger number of cases is required to solve the problem.

Meanwhile, we have certain observations which may be worth summarizing. Tentatively, and subject to confirmation or correction by further study, we may conclude that tuberculosis when complicated by chronic asthma becomes a formidable disease with a bad prognosis. Unless the asthma can be controlled, chronic invalidism is the best result to be expected. It therefore becomes the duty of the physician to be alert for symptoms suggestive of asthma in his tuberculous patients. If such are found, and especially if the patient has an allergic constitution and a cavity which retains fluid, no effort should be spared to prevent the development of chronic asthma and of the asthmatic habit. The condition is amenable to treatment if taken early. Next to the appropriate hygienic treatment of the tuberculosis, the best corrective and preventive measure is the regular and persistent drainage of cavities by some posture

which does not tax the patient's strength. Autogenous vaccines, administered in small doses and for a long time, are also useful in the early cases. From another viewpoint, we must bear in mind the wise conclusion of Giffin, that the examination of a chronic asthmatic in reality imposes upon the physician the duty of carefully excluding tuberculosis, not only by the careful and repeated examination of the sputum but by the use of the Roentgen rays.

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PRIMARY NEWGROWTHS OF THE LUNG

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Primary tumors of the lung and bronchi may be divided into benign and malignant groups. Strangely enough the former are much less common than the latter. They include adenomas and cysts derived from the epithelial elements; fibromas, myomas and bony tumors, derived from the connective tissue elements; cartilaginous and myxomatous growths whose exact origin is often uncertain; and angiomas derived from vascular structures.

These tumors as a rule are only of pathological interest, but occasionally they are of clinical importance. Blumgarten¹ mentions a case of a small pedunculated adenoma which obstructed a bronchial lumen, leading to the patient's death. Cystic changes of some size may occur and give symptoms.² Fibromas are usually small, varying from a few millimeters to a few centimeters. Yankauer³ reported marked pulmonary symptoms in a patient who had a small fibroma above the opening of the bronchus of the left upper lobe. The condition was entirely relieved following removal of the tumor through the bronchoscope. Bony tumors of the lung usually occur as

a result of ossification in cicatricial pulmonary tissues, and are therefore usually the result of inflammatory processes.⁴ Chondromas of the lung are usually small in size and of little clinical significance. However, in the fatal case of Vigoroux and Herisson-Laparré, a tumor "the size of an infant's head" was discovered. The origin often cannot be traced to any fixed pulmonary tissue. The embryonic remnant of an aberrant bronchus has been suggested as the source.⁵ Even more obscure is the origin of a myxomatous growth such as that described by Sutherland.⁶ This is a very rare clinical and pathological curiosity. Likewise the pulmonary angioma described by de Lange.⁹

The malignant tumors primary in the lung and bronchi are sarcoma and carcinoma. Sarcoma is much less common than carcinoma of the lung. In the series of cases collected by Adler,¹⁰ the ratio was less than one to four. It must be noted, however, that many of the cases selected by Adler as sarcoma have insufficient grounds for separating them from the group of carcinomas. Since Adler's time

hundreds of cases of primary carcinoma of the lung but comparatively few of primary sarcoma have been reported.

Sarcomas arise from the connective tissues of the lung and may become very large in size, often filling the entire chest on the side involved, and exceeding as a rule the largest carcinomas. Clinically they present the signs of tumor and either a massive diffuse shadow under the x-ray or a localized rounded shadow if arising in the peribronchial tissues. Treatment by the Roentgen ray has been reported as successful. In some at least of these reported cases, the clinical diagnosis must be regarded as doubtful. Treatment by excision has not been successful, most operated cases dying with later metastases as did* the case of Pritchard."

Carcinoma is the most common primary growth in the lung. Its incidence has increased in the present century. In Adler's table of several hundred thousand European necropsies, less than .1% were primary carcinoma of the lung in the period prior to 1900. Between 1900 and 1912 the incidence was over .4%; since this date a much higher proportion of cases has been reported in necropsy series. Eleosser¹² this year reported eight cases among 206 necropsies, or 3.8%.

The etiology of primary cancer of the lung, like that of cancer elsewhere in the body, is somewhat obscure, but infection and bronchial irritation play an important part. Tuberculosis has been called the chief factor. Metaplasia of bronchial and pulmonary epithelium to a malignant type of cell has been shown also in connection with chronic interstitial pneumonia. Influenza, chronic bronchitis and bronchiectasis have been recognized as causes by many different writers. Dust inhalation among miners has been given as a cause, and one or two instances of trauma to the chest have been followed closely by the occurrence of a primary carcinoma of the lung. The experimental proof of the effect of bronchial irritation in producing epithelial transformation has been shown by Winternitz¹³ following the intra-bronchial insufflation of acids, and more recently by Kimura¹⁴ who produced cancer of the lung in a guinea pig by the intra-tracheal insufflation of coal tar.

Primary cancer of the lungs occurs in men more often than women in the proportion about 70% to 30%. The greatest number of cases occur in the decade from 50 to 60, although cases as early as the first decade and as late as the ninth have been

reported. Occupation except possibly in the case of miners, has not been shown to have a definite relation to the disease. The right lung is involved more often than the left and the upper lobes slightly more often than the lower lobes.

The pathology is of considerable interest because of its bearing on diagnosis and treatment. The three epithelial tissues in the lungs are bronchial epithelium, the epithelium of the bronchial mucous glands, and the epithelial lining of the alveoli. The majority of cancers arise either from the bronchial epithelium or mucous glands, a very small number arising in the alveoli. For this reason primary cancers are usually situated at or near the hilus. A more or less diffuse dissemination of the growth into the lungs may occur by way of the peribronchial lymphatics, by direct extension, through the blood stream, and very rarely by aspiration.¹⁵ Cancers arising from the alveoli usually occur as a single nodule or as multiple nodules in the parenchyma, or they present a diffuse involvement of one or more lobes.

A great variety of microscopic types are found. The epithelial lining of the bronchi gives rise to tumors of the cylindric, squamous cell or even round or spindle-shape types. The squamous cell cancers frequently are cornifying in type. Occasional tumors present great variations within themselves or in the metastases. In one case which I have seen the lung contained cornifying epithelioma whereas a bronchial lymph node contained papillary adenocarcinoma. The bronchial mucous glands usually give rise to adeno-carcinomas, some of which produce mucous or colloid material. Cancers arising in the alveoli present cuboidal, cylindrical or flat cells.

The metastases of carcinomas of the lung may be very wide spread. The most important sites of metastases are the lymph nodes, liver, pericardium, opposite lung, kidneys, brain, adrenals.

The clinical history in cases of primary cancer of the lung is often not different from that of pulmonary tuberculosis. Cough, bloody expectoration, hemoptysis, fever, pain in the chest, loss of weight, dyspnea, even night sweats may occur. A particularly suggestive history, however, is that of dyspnea, choking attacks, paroxysmal dry cough or persistent pain in the chest. These particular symptoms may be called the symptoms of bronchial obstruction.

A large number of cases of primary cancer of the lung present symptoms not re-

*(Personal communication to the author.)

lated directly to the lungs, but rather to the sites of metastases. For example the symptoms of brain tumor have often been the first cause of the patient consulting a physician. Another group of cases present symptoms due to metastatic tumor in bones. A certain proportion present the symptoms and signs definitely diagnostic of pulmonary tuberculosis or other complicating diseases such as bronchiectasis and lung abscess. Occasionally subcutaneous lymphatic metastases are noted before marked pulmonary symptoms appear.

I wish to illustrate these types by reference to cases selected from a group of twenty-five primary carcinomas of the lung studied in the Medical and Pathological Departments of the University of California.**

The physical signs in the lung are principally those of tumor, pleural effusion and bronchial obstruction. In cases with mediastinal involvement, orthopnea, cyanosis and fullness of the superficial veins of the neck and chest may be noted. The cervical lymph nodes are often enlarged. The chest usually exhibits limited excursion on the side affected. The most common pulmonary finding in bronchogenic tumors is dullness or flatness over the tumor or over the area of lung supplied by the bronchus which is chiefly involved. Co-related signs are diminished or absent tactile and vocal fremitus, diminished or absent breath sounds, and sonorous or sibilant rales. Cases with resonance in the chest and no marked change of voice or breath sounds have been described. Moist rales rather than dry rales are sometimes heard. The fingers are frequently clubbed.

The x-ray is a great aid in diagnosis but occasionally it is misleading. If possible,

**These will appear in detail in a future publication by Dr. G. Y. Rusk and myself.

repeated films should be made at intervals of a few weeks.

There are certain pathognomonic aids to diagnosis: namely, finding cancer tissue in the sputum, biopsy either through thoracotomy or bronchoscopy, or finding cancer cells in the pleural fluid.

The treatment of primary cancer of the lung is unsatisfactory. Exposure to the x-ray has not been followed by improvement in many cases, and no permanent cure has resulted. Radium has been inserted into the bronchial growths through the bronchoscope, but without any definite results. Surgery has been successful in the hands of Sauerbrück and other surgeons. However because of the usual location of primary pulmonary cancer at the hilus or surrounding one of the large bronchi, surgery is of no avail in the majority of cases.

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INTESTINAL OBSTRUCTION

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Intestinal obstruction is any impediment to the onward passage of the bowel contents from any cause.

Obstruction of the bowel has been recognized as a distinct entity by medical men for many years. It is only within the past few decades that any extensive experimental and clinical investigations have been made in an attempt to lower the awful death rate, which has been and is attendant upon this condition.

We recognize two very different types

of this condition; namely, complete and incomplete. Complete obstruction gives us a very distinct picture and is best described under the heading of acute cases. The incomplete types we will consider as all falling under the chronic classifications.

The causes of intestinal obstructions are many. I shall attempt to enumerate them in the order of their frequency. Among the mechanical causes, strangulation of one of the various herniae, ranks first. Adhesions, the result of previous abdominal

inflammations, is second in frequency. New growths in the bowel, usually carcinoma, is a frequent cause, practically always occurring in adult life and usually above thirty-five years. Intussusception, which is confined almost entirely to infants and young children, ranks fourth in order of frequency as a cause of mechanical obstruction. Volvulus, which is found practically always in adult life and in cases which give a history of long standing constipation and frequently chronic purgation, is among the less frequent causes of obstruction. Foreign bodies as gall-stones, enteroliths, parasites and tumors external to the bowel are of about equal frequency of occurrence. Strictures of the bowel following ulceration, —tuberculosis, syphilitic, and others—are rather infrequently the cause of complete obstruction.

There is a very common type of obstruction which we designate as ileus. It is a paralysis, nearly always caused by acute peritonitis. It occurs rarely in pneumonia and typhoid. We frequently encounter this condition as a post-operative complication in peritonitis. Thrombosis of the mesenteric arteries and veins, depriving a part of the bowel of blood supply, will cause a paralysis of that portion of the bowel (pseudo-obstruction), exhibit a spasm lasting for a few hours or longer and then pass quickly away. The so-called "phantom tumor," found usually on neurotic women who suffer with colitis, is of the same type.

The cause of death in obstruction of the bowel has been rather extensively studied in an experimental way. Many theories have been advanced to explain the toxemia and a certain amount of proof has been produced for several. The earliest theory to receive any serious consideration was that of an autointoxication from the stagnating and putrefying intestinal contents; this has been disproved in many ways. The next hypothesis to attract attention was that death was due to a bacteriaemia. The finding at post-mortem, in many cases of ileus, of sterile heart blood disproved this contention. The third theory laid the blame on the secretions poured into the upper intestine from the liver and pancreas. This, too, has been given up as not the correct explanation. The fourth theory of cerebral anemia or shock is disproved by the occurrence of shock in so many conditions entirely foreign to obstruction.

Another theory advanced was that death was caused by a reflex irritation of the sympathetic system. The failure of animal experiments to bear out this hypothesis caused it to be abandoned. The theory that there occurs a perversion of the normal

function of the cells of mucosa of the upper bowel was suggested by Draper and Whipple; while not generally accepted this theory has not been actually disproved. The theory of rapid and extreme dehydration of the tissues seems to be untenable since death has been shown to occur following the intravenous injection of the poison before any water loss occurs.

J. W. Ellis, writing from the Surgical Research Laboratory of the University of Pennsylvania, says:

"We believe that the toxin that causes death in ileus arises in the cells of the mucosa of the duodenum. It is inert in the cells of the normal organ and when it is excreted into the lumen, under normal conditions, is immediately combined with the content of the intestines, and is innocuous.

In obstruction the condition is changed and instead of being thrown out into the lumen of the intestine, the major portion is forced into the lymph, and thence into the general circulation; the portion thus excreted is extremely toxic, judging from the toxicity of the relatively small amount that is present in the content of the bowel."

Ellis's hypothesis seems to be borne out rather accurately by his experimental work which is quite extensive. In any event the severe and often fatal toxemia of intestinal obstruction is evidently due to the production in the obstructed viscus of a poison, which when carried to the general circulation through the lymphatics in sufficient amount is rapidly fatal to the human organism.

The symptoms of acute or complete obstruction are very distinct of sudden onset and rapid progression. Pain and vomiting are the first symptoms. Either may occur first. The pain is severe and varies directly with the location of the obstruction, that is, the higher the obstruction, the more severe the pain. Vomiting gives temporary relief but the colic-like pain becomes rapidly more intense. The pain is diffuse over the entire abdomen and there is in the beginning no definite spot of tenderness. Marked constipation which resists repeated enemas, and all too frequently heroic doses of purgatives to the patient's detriment and the physician's chagrin. Enemas may wash out the lower bowel and at first produce gas. The inability to pass gas is a valuable symptom. The character of the vomitus changes from gastric to duodenal and then to intestinal. It is persistent but not always profuse in amount. Fever is very rare. Prostration is early and marked as a rule. In a few hours the pain and vomiting increase and the patient appears "shocked." Distention becomes very evident on the side where the obstructed gut lies. Visible peristalsis may be observed. The symptoms of a profound toxemia appear. The pulse is small

and rapid, respiration fast and shallow. The skin leaking, the pain lessens or disappears and delirium or coma appears as the forerunner of dissolution.

There are a few other conditions that give a similar picture. Acute dilatation of the stomach, acute pancreatitis, and peritonitis; also occasionally an acute appendicitis will give symptoms that might confuse. All are however covered in the term "acute abdomen" and for all practical purposes that is a sufficient diagnosis.

The diagnosis of chronic obstruction is made from the history and physical examination. Radiography and the fluoroscopy are now making possible the early diagnosis of chronic obstruction that was formerly not made.

The mortality rate in obstruction of the bowel is given by various writers as being from forty to sixty-five per cent, a truly awful percentage. Deaver found a mortality rate of sixty-two per cent in three hundred and twenty-six cases. Ochsner observes that the patients who have had cathartics practically all die. The death rate varies directly with the length of time the obstruction has existed; the higher up the obstruction, the more rapid the appearance of toxemia.

The treatment of all forms of intestinal obstruction is surgical. What can we do to lessen the present terrific mortality? Since strangulated hernias are the most frequent causes of fatal obstruction, it is obviously our duty to insist on all hernias being repaired.

Next, we must by every means in our power, urge the profession and laity to have all acute abdomens operated at once. Every hour of delay is courting disaster. It is a disgraceful thing to permit a patient with an appendicitis or other acute abdominal condition to progress until drainage is needed. Pus and drainage produce the adhesions that in turn so often cause fatal obstructions. Hence if we avoid the peritonitis, we avoid the dangers of subsequent obstructions. All chronic obstructions should be diagnosed and relieved before they become complete. Careful examination and x-ray study will permit a diagnosis in at least ninety-five per cent of these cases.

Patients with general peritonitis should be watched very closely. Frequently the second or third day post-operative, the patient appears as though he had been hit with an ax. He looks to be dried out, as though the water of his body had suddenly evaporated. He is restless and he exhibits on his breath a sweetish odor like acetone. This odor has often been described as that

of freshly chopped apples. Ileus is present and now the patient can be saved. Soon vomiting and severe pain appear and the fatal dose has been absorbed.

Given a case of post-operative peritonitis showing the above symptoms, what should be our procedure? At once do a bowel stab high up in the jejunum. This is best done by the insertion of a catheter tied in with a purse string. Pull the catheter through the omentum and then through the wall. It is not necessary or even advisable to fasten the gut to the abdominal wall. Give the patient fluids by hypodermoclysis continuously. Adrenalin given in saline intravenously seems to do some good. As soon as the bowel stab is made, wash out the stomach and give water very freely by mouth. This will wash out the stomach and upper bowel. These bowel stabs done early, before vomiting and before the symptoms of profound toxemia appear, will save many lives. Done late they are useless. Time is everything and is truly life or death to the patient.

If we wait for vomiting and classical symptoms to appear in these cases of peritonitis, we have lost our chance and the patient his life.

A bowel stab done under local without handling of the distended gut is without shock and would be harmless if not an absolute necessity.

Better far do one that is not needed than to realize when too late that we have slept on our rights and a life has been sacrificed by our hesitancy. The opening of the thoracic duct in fulminating cases of peritonitis has saved some lives. No doubt these cases are cases of intestinal obstruction or more properly ileus.

I am convinced that we can lessen the death rate in obstruction by more careful examinations. It is our duty to insist on curing hernias before strangulation occurs. We must stop having pus in the abdomen. All abdominal injuries should be regarded as possible fatalities and if in doubt explore at once. Surely the time will soon come when pain in the abdomen will cease to be the reason for giving calomel and castor oil.

The terms "acute indigestion," "intestinal indigestion" and "gastritis" are used too often to mean "I don't know." Like rheumatism they cover a multitude of sins.

There is in most of us a very marked tendency to disregard the obvious and look for some rare condition. Many deaths are due to this fact. Surely everyone should know an "acute abdomen" when he sees it. This is diagnosis enough to warrant immediate operation. This means that even an hour's delay may be fatal.

INFECTED TONSILS AS THE CAUSE OF THYROTOXICOSIS

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When the entire system is surcharged with the products of the thyroid gland, we call the condition thyrotoxicosis. The symptom complex of Basedow's disease illustrates the condition. While Basedow's disease is a thyrotoxicosis, all thyrotoxicoses are not Basedow's disease.

The tonsils occupy an open position in the throat; no food can pass into the stomach, or air into or from the lungs, without passing them. Particles of food and bacteria mixed with mucus will gather on or about the tonsil; this mixture of food, mucus, bacteria, etc., will putrify, forming toxins. This degenerated mass, in turn, lowers the vitality of the tissue where it is lodged, usually the tonsil crypts. With a tonsil crypt spoon, I have excavated and obtained streptococci, staphylococci, pneumococci, catarrhalis, bacillus capsulatus mucosus, Vincent's Bac. fusiformis, and many others, even almost a pure culture of diphtheria when the patient had never had diphtheria and could not remember being near a case of diphtheria. These tonsil crypts may be considered a sump or a catch basin to catch the different offending organisms. The infected crypts, inclosing their poison material, may be sealed over during any inflammatory process and thus develop a "blind" abscess.

It matters not whether the mouths of these crypts are open and exude pus or whether they are sealed and have an imbedded abscess; the tonsils are diseased and the toxins are carried into the circulation. It is conceded that these bacteria and toxins cause rheumatism, endocarditis, neuritis, duodenal ulcers and many other systematic disturbances. Why can they not cause thyrotoxicosis? Rosenow has shown that an infection at the root of the tooth has caused a stone in the kidney. Why can not an infected tonsil crypt cause thyrotoxicosis?

The thyroid gland is a manufacturing plant and a storehouse of colloidal material, which is iodine connected to protein, forming a compound called thyroglobulin, the active principle of which is thyroxin. This colloidal material is taken out of the storehouse by the lymphatics and circulation and carried to the part of the body where it is needed most; for example, to the nervous system, the vascular system, skin, hair, sexual organs, the osseous system, etc.

If there is too much or too little colloidal material manufactured by the gland there will be too much or too little stored in the storehouse, therefore there will be too much or too little absorbed and carried into the system, thus there will be alterations in the aforesaid structures either as an over-stimulation or under-stimulation. It matters not what stimulates the thyroid gland to an over-production of colloidal material, it causes a thyrotoxicosis, and if we have an under-stimulation we have cretinism in the child or myxedema in the adult. The report of the following case will support my contentions:

Mrs. D. Age 45, was sent to me October the 24th, 1924. She was very nervous, tremors of the hands, pulse 150, eyes somewhat protruding, palpebral fissure enlarged, ankles swollen. She had been in bed five weeks because of rapid pulse. About one year ago she began to complain of lack of endurance and rapid heart. Was east and visited a great deal, noticed hands weak and trembled, lost weight from 153 to 125. Blood pressure 130.

Examination shows both lobes of thyroid large, tonsils burned and infected, blood count red, 4,368,000, white, 6,000. Coagulation time, 5 minutes. Urine, straw, acid, 1012, no sugar or albumin, phosphates, many epithelial cells, small calcium oxalate crystals.

After giving her calcium lactate and consulting her physician as to the condition of her heart, we gave her ether and removed her tonsils by dissection and snare. The right was very large and buried deeply, the left was full of detritus. There was so much in it that we used the sucker to remove it to prevent her from inhaling it. The right bled rather freely, enough that we used a compress for fifteen minutes; after that no bleeding.

Laboratory report on tonsils showed moderate amount of inflammatory infection and fibrotic change. The crypts showed large deposits which have undergone hyalinization and in places calcification. The changes represent chronic infection of crypts and some diffuse chronic inflammation.

She remained in the hospital five days, pulse 160 down to 134. March 15th, 1925, she was feeling fine, could hardly detect any enlargement of the thyroid gland, no tremors, no Grafe, pulse 80, blood pressure 120-78, weight 144½.

In 1913, Clement F. Thiesen of Albany, N. Y., published a paper entitled, "Acute Thyroiditis as a Complication of Acute Tonsillitis." He was one of the first to point out that acute tonsillitis was the cause of acute thyroiditis which, if repeated a number of times, will in some cases at least cause goiter.

All of Thiesen's patients were young women. A short summary of his cases are as follows:

Case one: Age 20. Sore throat for several days before examination revealed a typical follicular tonsillitis. Thyroid enlarged and tender on palpation, the hypertrophy increasing during the course of tonsillitis. The swelling of the thyroid had begun during the third day of "sore throat," and the patient stated that the gland was not enlarged before the attack of tonsillitis. Under the usual treatment of tonsillitis, with an ice coil around the neck, the attack subsided in about one week. Tonsillectomy was refused, and the next winter the patient again presented herself with a similar attack, "running the same course, and again developing with an acute tonsillitis. This patient came to the clinic at regular intervals during the next two years, and while there was no further attack of acute thyroiditis, she developed a gradually increasing diffuse goiter. It is at least possible that etiologically there is a connection between her attack of thyroiditis and the subsequent hypertrophy of the gland. There is no doubt that the infection of the gland was each time caused by the acute tonsillitis."

Case 2: Age 22. Same history as preceding case. Patient was practically well in ten days, and was not seen again for about two months, when she came to the clinic with typical symptoms of hyperthyroidism.

Cases 3 and 4: 21 and 24 years old. Both stated that before the present attack they had had no enlargement of the thyroid. One patient was just getting over a severe attack of acute tonsillitis, and the other was still having an acute attack.

Case 6: Age 19. Very severe acute tonsillitis which was followed by the development of acute thyroiditis. The attack ran the usual course and a year later another acute thyroiditis came on with an acute follicular tonsillitis. This patient has been under observation continuously, and has developed a well marked diffuse goiter, which started about six months after her last attack of thyroiditis.

Case 7: Age 30. A very severe acute thyroiditis came on directly after an acute tonsillitis, "There was a good deal of dyspnea and dysphagia in this case, and within a few months after the attack she developed a typical condition of hyperthyroidism."

It seems reasonable to suppose that recurring attacks of tonsillitis might involve a thyroid, and eventually set up a chronic condition of hyperthyroidism, even if the thyroid symptoms were never sufficiently acute to be differentiated during the tonsillitis attack.

Louis E. Brown, of Akron, Ohio, has probably done more work on the relation of tonsillar infection and thyrotoxicosis than anyone else. He not only studied his own patients but prepared a questionnaire which he sent to twenty-eight physicians. These included internists, surgeons, and ear, nose and throat men, the idea being to get a broad range of opinions. The questionnaire was as follows:

(1) How many cases of goiter have you had in your practice, in which according to the patient's history, the symptoms accompanying the goiter were apparently temporarily increased during the attack of tonsillitis?

He received thirteen positive replies from such men as David Marine, Plummer of Mayo Clinic and Allan Graham.

(2) In how many cases, where adults presented in early stage of goiter, was the growth of the goiter apparently arrested by the removal of the tonsils?

All the replies to the question were affirmative. They came from Crile, H. G. Sloan of Cleveland, Albert J. Ochsner, O. P. Kimball and such men.

(3) How many cases after thyroidectomy, in which the symptoms persisted were relieved by a tonsillectomy?

Dr. J. A. Stucky of Lexington, Ky., had seen seven such cases.

(4) How many cases of young girls at puberty, who have a beginning simple goiter, had their tonsils removed in early childhood, or at least before the symptoms of goiter were evident?

Most of the answers to this "fell down." "No data" was the reply.

(5) In those who have had their tonsils removed how many were benefited or cured by tonsillectomy?

All who answered this believed by removing an infected tonsil in an adolescent girl who had a goiter would have a beneficial effect on the thyroid condition.

Dr. Brown said a number of patients where a thyroidectomy did not relieve the toxic goiter symptoms were not relieved until infected tonsils had been removed. A few cases seen where a tonsillectomy had been done and a small piece of infected tonsil was left the toxic goiter symptoms remained until this infected tissue was removed.

Dr. G. B. Wood of Philadelphia, recorded a case of a trained nurse, who had recurring tonsillitis followed by exophthalmic goiter and hyperthyroidism. After removal of the tonsils the attacks stopped for six months, the goiter began to decrease in size and the exophthalmos to disappear. Then followed a sore throat and symptoms of hyperthyroidism. At this time it was found that a small piece of the tonsil had been left. That was removed and all the symptoms of hyperthyroidism disappeared.

Shambaugh of Chicago, under whom I have studied, warned us to look out for chronic buried abscesses where the patient does not complain of "sore throat." I have taken out tonsils where the abscess occupied half of the base of the tonsil. Many times in children I have found so much detritus buried that I would stop operating long enough to suck this poisonous material out of the throat for fear the patient would inhale it into the lungs and cause a pulmonary abscess.

Dr. Joseph Beck of Chicago, in whose clinic I have worked, believes it much better to do a tonsillectomy than to ligate the superior thyroid artery as a preliminary step to thyroidectomy.

Dr. S. P. Beebe of New York, after examining 3500 cases of thyrotoxicosis, says that 35 to 40 per cent of patients between sixteen to twenty-four who have hyperthyroidism give a history of repeated attacks of tonsillitis.

Many patients with Basedow's disease

with their early headaches come to the ear, nose and throat men first. It is for him to exclude eye troubles and sinusitis. Then, after examining the tonsils and larynx, he should always examine the thyroid. Men doing thyroid work should always examine the tonsils.

The object of this paper is to stimulate interest in this subject and if need be to invite criticism and opposition which will arouse more widespread consideration of the entire subject.

Significance of the Colloidal Properties of Gelatin in Special Dietaries

By Thomas B. Downey, Ph. D.

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An examination of the dietetic possibilities of gelatin from a chemico-physiological standpoint reveals a number of properties which should make this unique food product a valuable addition to special dietaries, particularly those in which milk forms the sole or major portion. In such dietaries gelatin functions as a protein food to the extent of the utilization of its amino acids by the body and in addition possesses marked activity as a protective colloid and emulsifying agent. Practical observations in clinics and hospitals as well as experimental work in laboratories indicate that these characteristic properties of gelatin as a colloidal substance exert a most significant influence in promoting digestion and absorption of certain types of foods.

The importance of this colloidal activity of gelatin where fed in conjunction with dairy products has been demonstrated by the writer in feeding tests with the albino rat. Shortly after weaning the young from several litters were divided into two groups; one group received pasteurized whole milk as its sole diet, the other pasteurized whole milk containing one per cent of gelatin. Observations extending over a period of six months showed that the growth and well being of the group fed on gelatinated milk was markedly superior to animals fed on the plain milk diet. The increased growth was accomplished on smaller food consumptions. In fact, during the early growth period for equivalent gains in body weight the animals on gelatinated milk consumed about 23 per cent. less food than the group on plain milk.

Another striking illustration is found in the writer's experiments with ice cream. Over a period of seven weeks it was observed that a group of rats fed on an ex-

clusive diet of ice cream containing one per cent. of gelatin gained no less than 25 per cent. more in body weight than was the case with their brothers and sisters whose diet was plain ice cream. For equivalent gains in body weight, the food consumption of the group fed on the gelatin-containing ice cream were much less. Smaller percentages of gelatin resulted in proportionate improvements. It is important to note in this connection that the better nutritional status of the gelatin ice cream group after a number of months on the diet was reflected in continued health and growth, and in increased bone development and reproduction in several cases.

It should not be presumed that the observed improvements of the dairy products are due entirely to the added protein value of the gelatin but possibly more to the protective colloidal and emulsifying effects that it confers. The digestive processes are essentially colloidal phenomena, whereby fats, carbohydrates, and proteins are ingested in the colloidal conditions and changed by the various enzymes to degradation products capable of absorption by the body. To accomplish the formation of these simpler substances, the enzymes must come into intimate contact with the food particles. If, perchance, the food particles are present as large tough masses, as is the case with cow's milk coagulating under the influence of the hydrochloric acid and rennin in the human stomach, the contact surface of the enzymes with the food is limited and gastric digestion is delayed or impaired. Various specialists have described experiments *in vitro* as well as with humans which show that the coagulation of cow's milk by acid and rennin is prevented or modified in character in the presence of relatively small amounts of gelatin. This

effect is spoken of as protective colloidal action and it is interesting to note that gelatin is one of the most efficient of all known protective agents. Gelatin is also a good emulsifying agent and it is quite probable that it aids the secretions of the alimentary apparatus in the emulsification of fats.

In discussing the digestibility of milks Chapin says that those animals whose stomachs form the larger percentage of the digestive tract and their digestion is largely gastric produce milks that form tough curds, as for example, the cow. In contrast is the human whose stomach forms only about 20 per cent. of the digestive tract. Human milk curdles in light flocculent masses. It has been pointed out by Alexander that human milk contains a natural protective protein in large amount, which is present in small amount in cow's milk. It would seem that the addition of such a protective agent as gelatin to cow's milk would make it particularly suitable for infants, and such has been found to be the case, as is testified to in pediatric literature."

In like manner, gelatin has been shown to be of value in other dietaries composed largely of dairy products. For example,

Bawk reports that the addition of gelatin to the milk-egg diets of tuberculosis patients resulted in decided nutritional improvements with the majority of the cases tried.

The experiments described suggest the advantages that are to be derived by the utilization of gelatin in other dietaries. The protective colloidal and emulsifying action of gelatin promotes the digestion and absorption of various types of foods. It is also misleading to assume that gelatin as a protein is of insignificant food value.

Feeding tests by McCollum and by Osborne and Mendel have shown that with certain cereal grains gelatin is exceptionally well utilized, presumably through its high content of the amino acid lysine. Also, with milk proteins gelatin is of value, as has been found by Sure. In combination with milk in the liquid form, it is believed, however, that the colloidal properties are of greater significance.

2. See, for example: Jacobi, "Industrial Diseases of Infancy and Childhood," 1887, p. 79; Starr and Westcott, "Diseases of Children," 1900, 23; Griffith, "The Care of the Baby," 1908, 386; and Friedenwald and Ruhrah, "Diet in Health and Disease," 1923, 295, 466. On the utility of gelatin in chronic intestinal infaction, see Herter, "Infantilism from Chronic Intestinal Infaction," 1908, 101.

BRONCHIECTASIS: ITS DIAGNOSIS AND TREATMENT

R. J. CALLANDER, M. D. Tucson, Arizona

The presentation of this paper is rather more in the nature of a demonstration than it is a discussion of bronchiectasis or a recording of a number of cases. It is a repetition of some work of French experimenters, particularly Armand-de Lille, who injected an oily iodine solution (lipiodol, 40% iodine by weight) intra-tracheally for the purpose of outlining bronchiectatic cavities. The injection of this substance is new with these men, but the idea itself is not new, for Drs. Lynah and Stewart of New York, in 1921, reported a number of such cases (mostly abscess cases) injected with bismuth subcarbonate in olive oil through the bronchoscope. They struck upon this after seeing the bronchial trees of a number of patients accidentally injected with opaque material through laryngo- or tracheo-esophageal fistulae, during esophagus or stomach examinations behind the x-ray screen.

Before proceeding with the demonstration a few words about bronchiectasis may not be amiss.

Bronchiectasis is a condition of chronic

dilatation of the bronchi and bronchioles, which almost always involves the lower portion of the lungs, is usually unilateral, and characterized by profuse productive cough, foul expectoration, clubbing of fingers, occasionally fever, hemorrhage or even pleural effusion, but usually without evidence of toxicity or emaciation.

Three types have been described, infiltrative, cylindrical and sacculated, although the classification is probably more a roentgenological than a pathological one.

The infiltrative type is like a chronic bronchitis except it is localized in the lower lobes and there is no retention of the products of infection—it drains well.

The cylindrical type is a fan-shaped increase in irregular density, with the more dense or handle-part near the hilus. The cylindrical dilatation is best seen on x-ray exposures when drainage is complete, as after posturing.

The sacculated type is characterized by localization of distinct cavitations surrounded by dense fibrous tissue. The cavitations

are usually multiple and vary from bean-sized to walnut-sized.

Etiology: Any condition which tends to weaken the bronchial walls and to lessen their elasticity or increase the pressure within the bronchial tubes, predisposes to this disease. Such degenerative changes are most common in broncho-pneumonia and bronchitis resulting from whooping cough, measles and influenza. The infiltrative process in the walls paralyzes the muscles and when pressure is high during cough, dilatation results. When the pneumonic process is more extensive fibrous tissue replaces normal parenchyma and the resultant contraction pulls the walls of the bronchioles apart. Cough is always a factor in the production of the dilatation. A traction or fixation is produced by either fibrosis or thickened pleura in other chronic conditions as tuberculosis, lues, chronic empyema. When bronchiectasis is secondary to a foreign body, as it occasionally is, the *modus operandi* is probably somewhat different. There is local irritation with subsequent infection, and the collection of exudates distally causes the dilatation. In any case, once dilatation has begun, accumulation of exudates causes further dilatation. The relation of sinus infections to bronchiectasis is quite definitely established. Webb and Gilbert in 1921, showed that many cases of bronchiectasis and chronic bronchitis had accessory sinus disease, without any subjective symptoms of pain and when washed out and cleared up, the lung infection improved. Hence, every case of bronchiectasis should have his nose and sinuses examined, and if necessary, treated.

The **diagnosis** is made on a history of gradual or insidious onset (except in case of a foreign body) usually after a pneumonic process, with little or no history of toxemia or constitutional symptoms. The patient is apparently in fair health. If the process has been going on for some time, there is clubbing of the fingers or osteoarthropathy (probably more pronounced in this condition than in any other). The sputum is usually raised spasmodically. The three layer sputum with polymorphs in most abundance is usually present but is not necessarily characteristic.

The physical findings may be, and most usually are, few, especially in early cases. There may be coarse rales at one or both bases. The apices are usually clear. If there is accompanying thickened pleura, as later in the course, there is also fixation and flatness.

This condition must be differentiated

from other lung conditions. This can be done, oftentimes, by the history alone.

From tuberculosis, by no history of loss of weight, toxemia, night sweats, fever, pleurisy, hemorrhage, no apical involvement and negative sputum.



Fig. 1.



Fig. 2.

From lung abscess, by no history of sudden onset, or of recent operations, such as tonsillectomy, or no localization of marked findings in the chest on physical examination. The x-ray is of definite value here where we frequently get the cotton-ball like effect or the definite abscess cavity.

Occasionally rarer conditions as lues, blastomycosis and pneumoconiosis must be differentiated.

The x-ray examination has never been of any great value in the diagnosis of bronchiectasis, except probably in an attempt to rule out tuberculosis by the clear apices. This may be because we have become unaccustomed to study in a proper manner, the lower lung fields. Also, the study of the left lower lung field is always difficult because of the interfering cardiac shadow. This method of injecting the trachea with an opaque material should be of great benefit in helping us to diagnose bronchiectasis and also, what is more important, the extent of the process. Also this injection has, in about every case according to the reports of other workers, been of value therapeutically, in decreasing the expectoration. In the few cases we injected this was noticed.

Case 3, (Figs. 1 and 2).

Miss E. M. C., age 20; wt., 108; ht., 5 ft. 4 in. Brother has healed tuberculosis. In past history, frequent colds, pneumonia with flu in 1918, pleurisy in 1923, measles, whooping cough (slow recovery) followed by cough; scarlet fever.

At age of five years had pertussis and has had a bronchial cough ever since; in 1918 had severe flu with temperature of 105 for a week, and pneumonia. Cough has been bad and productive since; tonsils out two years ago; antrum washed with some relief. In 1923 took cold and ran slight temperature for a month. In Chicago, sputum revealed tubercle bacilli.

Phys. Exam.: Temperature normal; pulse 110; B. P. 120-80; thyroid slightly enlarged; heart normal. abdomen negative; extremities and reflexes normal; chest shows coarse rales both bases, especially left; left apex dull with a few rales.

Blood Wassermann negative; urine normal; sputum 55 c. c. in 24 hours, negative for tubercle bacilli.

Radiographic findings before and after injection of the bronchi are shown in Figs. 1 and 2.

Dagnosis: Bilateral bronchiectasis; tuberculosis.

Case 4, (Figs. 3 and 4).

F. C., male, age 16, wt., 131; ht., 5 ft. 6 in. Examined Dec. 1, 1924.

Family history negative for tuberculosis. Was never robust, frequent colds, tonsils and adenoids removed when ten years old.

Present: At age of three had typhoid fever and pertussis and was sick in hospital about seven weeks and was croupy for several months. Had pneumonia four years ago and made the usual recovery; two years ago had pneumonia again, and expectorated pus for a month or so afterward, and off and on since. Suddenly, one month ago, began to cough and raised about six ounces of sputum and

had fever. Coughing makes him very weak; raises two to four ounces twice a week. Usually free from fever.

Phys. Exam.: Sixteen year old boy who does not seem sick; temperature normal, pulse 84, B. P. 110-70; heart negative; abdomen negative; ex-



Fig. 3.



Fig. 4.

trémities and reflexes negative. Chest shows coarse rales with fixation and flatness in right base.

Blood counts normal; Wassermann negative; sputum 55 cc. in 24 hours. Urine negative.

Radiographs (Figs 3 and 4) show the appearances before and after injection of the right bronchus.

Diagnosis: Bronchiectasis of right base, with thickened pleura.

The treatment of bronchiectasis, in spite of various attempts at surgery, is medical, and consists in postural drainage and vaccines. It is only fair to say that in an occasional unilateral case without thickened pleura, artificial pneumothorax is advantageous.

The postural treatment is of very great value and seems to be little understood over the country. The important thing is to tilt these patients up frequently at first (every two hours) for anywhere from two to twelve or fifteen minutes. At first they may be only able to stand it for a minute or two, but can later increase it. After weeks or months when the expectoration is less, the interval between posturing may be lengthened, until finally they only posture two or three times a day. Another important item is to keep them posturing for months after they have stopped expectorating. Some cases clear up nicely on posturing alone, but in others vaccines properly given are an important aid. The right

way to give vaccines in these cases is to give a dose big enough to stir up the expectoration and then wait until it subsides. It might take seven, ten or fourteen days.

I might say that most of the French experimenters injected the opaque material through a cannula inserted into the trachea from externally through the crico-thyroid membrane, but we decided on the more conservative if more difficult method of injecting intra-laryngeally, through the throat. In this connection, I wish to thank Drs. Cates and Morris of Tucson, who did the injecting for me. We found that we did it much more easily in our later cases when we not only swabbed the pharynx and larynx with 5% solution cocaine, but sprayed some into the trachea before attempting to inject.

CONCLUSIONS

This method of injecting the bronchial tree is of considerable value from the standpoint of diagnosis, especially, in the left sided cases. There is no mechanical danger, and I do not believe there is much danger to tuberculous patients from the amount of iodine absorbed. Apparently, it is of value therapeutically, and these cases could be benefited by such injection every six to eight weeks.

MALARIA CONTROL BY QUININE

DR. E. C. HOULE, Chief Surgeon and DR. H. A. HARRIS, Division Surgeon
Southern Pacific of Mexico Railroad Co., Empalme, Sonora, Mexico

A very interesting printed article has been published for limited distribution by the above authors summarizing their experience during the five year period from 1919 to 1923, in the treatment and control of malaria on the Sinaloa Division of the Southern Pacific of Mexico Railroad. Their experiences are so interesting and the report contains so much of value for physicians located in malarial districts of Mexico or elsewhere, that it is reproduced in part below for the benefit of the readers of this journal:

The Sinaloa Division of the Southern Pacific of Mexico is a tropical division, 753 kilometers long (nearly 500 miles) lying in its entirety in the lowlands paralleling the West Coast of Mexico, between the latitudes of 26 degrees and 21 degrees. The whole territory is below the frost belt. The mean temperature is sufficiently high to support mosquito breeding the year round, but, due to the favorable effect of a long dry season, from November to June, the breeding of *Anopheles* is reduced to a minimum during that time. * * * *

The Division employs about 900 men in all branches. Of this number, about 400 live in cities and towns where medical talent is available, and about 500 are in villages, stations, sections, and

itinerant camps, where the only medical service available is that supplied by the Division Surgeon, traveling by motor car, or by dispensary-hospital car operated on local freight trains. Due to various factors of large territory to be covered, scarcity of hospital personnel, and stress of other work, regular periodical visits can be made only once a month in the dry season, and twice a month during the malaria season.

As practically every one of these 500 employees supports a family, the number of persons to be treated by the Division Surgeon in this itinerant service is augmented to a minimum of 2000. From an industrial view point this is important as sickness in the family, (preventing preparation of food), is second only to personal illness of the employee in the interruption of work. * * * *

During the period 1912 to 1919, it was not unusual to find, in malarial season, and in unfavorable localities, from 30 to 100% of the working forces entirely incapacitated on account of malaria. When thorough inspection of the forces was practicable it was easy to demonstrate that above 30% of the men suffered from anemia, enlarged and tender spleens, and other debilitating effects of chronic malaria. * * * *

Economic and sociologic reasons prevented the use of the standard tactics of the organized anti-mosquito campaign. Ditching and draining, beyond the actual necessity of maintenance of track and embankment, are impossible to apply over 700

kilometers of uncultivated country, much of which is swampy woodland in the rainy season. Oiling is impossible for the same reason. Screening of habitations is almost equally unthinkable, less because of cost than because of retarded sociologic status of the labor. Even the wealthy and educated do not screen their houses, although they use bed-nets, more for comfort than any idea of prevention of disease. Even the best local architecture is not favorable to the application of screen.

These three modes of attack—drainage, oiling and screening,—being out of consideration, there remains only one valuable weapon, the use of quinine. The outlook for this was not favorable. Many authorities belittle, or even decry the prophylactic use of quinine. The published experiences of the British armies in the Balkans and in Mesopotamia were particularly unfavorable. Nevertheless, the persistence of the Italian government in supplying the rural districts with quinine was encouraging, and there was further stimulation from the great experiment by the American Public Health Service and the International Health Board in the Delta counties of Mississippi in 1916 and 1917, in which much use was made of quinine as prophylactic. As a result of this work, in 1918 Dr. C. C. Bass, Professor of Experimental Medicine of Tulane University, announced that **With sufficient quinine available and the people sincerely desirous of being rid of the disease, MALARIA MAY BE CONTROLLED BY QUININE ALONE IN ANY AREA OF THE WORLD.** (Report International Health Board, January 1, 1921.)

In 1919 it was resolved to try the systematic use of quinine in the Sinaloa Division. Although some preliminary work was done this year, it was impossible to get a good start before the spring of 1920. The total number of people to be treated was relatively small, but the physical difficulty of establishing contact over 700 kilometers necessitated much simplification of original plans. Card classification of individuals had to be abandoned except for possible carriers or chronic cases. It was found that practically all treatment had to be administered by foremen or timekeepers, many of them hardly literate, who, considering themselves already overburdened by duties, were indifferent, reluctant, or actually antagonistic in every case, and had to be carefully educated into some semblance of compliance with our ideas. For these reasons treatment had to be confined to one single form of quinine, the sulphate in capsule, abandoning any preexisting ideas of combined treatment with arsenic, iron, etc.

It was also necessary to disregard blood examinations, as being wasteful of time as far as practical results were concerned. Reliance was placed on previous history and objective signs, such as anemia, enlarged spleen, etc. It was found that a record of spleen examinations, showing enlargement or tenderness, was most valuable and easy to establish.

Groups of employees or their families were lined up and each person required to bend slightly forward from the waist. The examiner passed along the line, gently pressed his fingers into the upper abdomen, under the left costal margin. Noting enlargement or tenderness of the spleen, he was at the same time in position to note evidence of anemia in the ocular conjunctiva or oral mucous membrane.

Plan of Campaign Adopted

- 1—Preliminary treatment of known carriers or chronics. "Sterilization" treatment.
- 2—Intensive treatment of acute cases.

3 Persistent after treatment of recent cases.

4—Prophylactic treatment of all other individuals.

All of the above based on the use of quinine sulphate, in capsules, as recommended by C. C. Bass, and later adopted as "Standard" treatment by various public health organizations. (Reprint No. 578, U. S. Public Health Reports.) Also, wherever possible, the capsules were given at night, as recommended by Bass, with the understanding that "they work while you sleep." This simple precaution has been of great help with the ignorant and the prejudiced, as many of the unpleasant effects of quinine thereby escaped attention.

First. Sterilization of Carriers.

Each carrier is a possible focus of infection. Even Anopheles mosquitoes are harmless if they have not previously ingested blood from an active malarial subject. Beginning about the first of May, that is, two months before the great influx of Anopheles mosquitoes, all foremen were instructed to treat all known chronic cases under their charge. These carriers had previously been segregated by:

- 1—History of malarial attack within a year.
- 2—Presence of enlarged or tender spleen.
- 3—Presence of moderate or pronounced anemia.
- 4—Other physical signs of malaria.

The treatment consisted of two capsules of five grains each, every night after supper, for a period of at least eight weeks. The foreman was supposed to administer this personally, and to assure himself that the capsules were actually swallowed. Needless to say, it was impossible to enforce these instructions, but, year by year, the older and more experienced foremen are improving in this respect, as the results become more obvious.

Children receive corresponding doses according to age.

Second. Intensive Treatment of Acute Cases

At least five capsules (twenty-five grains) each day during the continuance of the fever. This treatment is usually promptly administered and well received, as long as the acute symptoms persist, usually three to five days. It is not this emergency medication, but the other persistent treatments which are misunderstood and rebelled against.

Third. Persistent (Sterilization) After Treatment of Recent Case.

Immediately upon subsidence of the acute symptoms, the patient is supposed to undergo the eight weeks treatment, for sterilization, of two capsules (ten grains) each night after supper. We suspect that rarely do we get this full course of administration.

Fourth. The Prophylactic Treatment of All Others

All members of the section, camp or group, not included in three preceding classes, are supposed to get the prophylactic dosage. For adults this consists of ten grains (two capsules) on each of two successive nights of each week. For purpose of regularity it is recommended to the Foremen to use Friday and Saturday nights. Sunday is not considered on account of absences from camp.

It is believed this dosage on two successive nights has considerable sterilizing effect, and is much less obnoxious to the well than dosage every day. If this is true, there is the added economic advantage of avoiding unnecessary expense in these days of high cost of quinine.

On January first of each year all treatment (except for active cases), is suspended until May first. This is based on the practical disappearance of *Anopheles* mosquitoes. Cases of malaria appearing in this region after January first are rarely tertian in type and usually are obvious relapses.

We apologize for the use of the term "prophylactic," as this treatment is probably more "abortive" than "prophylactic."

Results

It is impossible to estimate results from actual tabulation of incidence of malaria, as the work is too widely distributed to maintain accurate data. However, we possess a valuable check in the data of admission of malaria patients into the Division Hospital in Mazatlan, to which all of the more serious cases are sent. This includes men only, as women and children are not admitted to treatment in Hospital, although they are included in all treatments available in camp.

Decrease in Cases Admitted to Mazatlan Hospital 1919 to 1923

YEAR	Average Force	Admitted Mazatlan Hospital	Percent Working Force	Betterment from Previous year	Betterment from 1919
1919	906.5	208	21.75	—	—
1920	1050	154	14.66	32.57%	32.57%
1921	850.8	69	8.11	44.68%	52.8 %
1922	863.3	57	6.6	18.62%	69.65%
1923	1009	67	6.64	—	69.46%

Note One—The decreases in cases since 1919 show an apparent betterment in malarial conditions of practically 70%.

Note Two—There has been no betterment in 1923 over 1922, suggesting that continued improvement cannot be expected under present conditions. Further gain will depend upon:

A.—Improvement over present plan of treatment.

B.—Improvement of general sanitary condition of country.

Notes on Progress

While results were promptly encouraging to the Medical Staff, they were not so obvious to other officials. The energetic aid of the Superintendent was most beneficial from the very beginning, and soon other officials began to lend active support. The best results were obtained where instructions were carried out by the supervising foreman in a rather military manner. The poorest results were among those employees who were freest to choose for or against participation, such as office men, agents, minor officials and trainmen, and the morbidity of malaria is still unnecessarily high in these groups.

The work with track laborers has been most successful, as these are more intimately under orders and observation of their foremen. It has been less successful with the women and children of the same laborers as many an autocratic foreman becomes mild and apologetic when dealing with the women of his camp. This is where forceful support by the doctor becomes most necessary, as it is recognized that children under

twelve years of age are the commonest carriers (60%).

From time to time sporadic outbreaks of rather large proportions have occurred. Invariably they have been explainable in that overburdened or careless foremen have, for long periods, allowed their quinine stocks to become depleted, or otherwise failed to carry out instructions.

Much trouble has been experienced from the migratory habits of the laborers. Chronic malarials quit work in one camp and soon appear in another camp miles away, and are often undetected for long periods.

While it is recognized that segregation and sterilization of carriers is the ideal mode of attack, we believe that prophylactic dosage of the non-infected is of great importance, for the following reasons:

1.—Due to turnover of labor, in employments, discharges and transfers, and to the proximity of untreated rural labor, new carriers and new sub-acute cases are constantly coming in contact with the non-infected labor. These new foci of infection may remain undetected and untreated for long periods.

2.—To the individual the prophylactic dosage is the least objectionable form of treatment. The dose of quinine being small, and the dosage intermittent, there is less opposition to this than to the sterilizing treatment. It is very doubtful that the sterilizing treatment is carried out to the desired extent, (eight to ten weeks), in more than a few cases. Even the most intelligent patients become careless or even rebellious after two or three weeks of comparative well-being and freedom from symptoms. Children, who are the principal carriers, are particularly difficult to treat consistently. It is probable that we could secure more persistent treatment by camouflage of the quinine in other form than the capsule, as a "tonic" treatment, but this would defeat one of the original intentions, which is to establish a firm belief in quinine as the sole curative agent, and to wean the people away from the excessive use of patent medicines of doubtful value. Also, it is possible that our sterilizing treatment is unnecessarily protracted for the rather mild type of tertian fever generally encountered. Still, we believe that most acute as well as chronic cases are inadequately treated, and that a prophylactic use of quinine is definitely indicated.

It must be remembered that the systematic use of quinine as a preventative against malaria is only an expedient, relatively expensive and only relatively protective. It is not to be compared to the more permanent results to be obtained by the elimination of mosquitoes, by draining, oiling, screening and the use of bednets. Protection by the latter methods can be made absolute, even in tropical countries, as has been proven at Panama.

It is only when eradication of mosquitoes is made impossible, by financial or sociologic reasons, that the systematic use of quinine is justified. Under such conditions, it may be of great service, particularly to communities under strongly centralized authority, such as:

Mining towns and camps,

Construction camps,

Lumber and wood camps,

Troops under campaign conditions,

Irrigation projects, including rice and sugar plantations.

The plan is not feasible for communities or in-

dustries not under strongly centralized control. The worst sufferers from malaria are villagers and country people living in the marismas and river bottoms, and in the fisheries. Here, medical talent is rarely available, and pure quinine is almost unknown, while large sums of money are spent for patent tonics and febrifuges of high cost and small value. For these people, legislative action would be desirable in controlling nostrums and quackery, and in economical provision of quinine on the Italian system.

The Italian government provides quinine at a fixed price, at cost or slightly below, for the malarial districts. The quinine is put up in packets sufficient for an individual treatment at a certain age. The carton cover is utilized for printing simple and valuable advice against malaria. All storekeepers in the malarial districts are required to sell these packets. Thus it is possible for the head of a family, at a cost of about one and a half pesos per head per year, to protect himself and his family from a debilitating disease, and to increase his efficiency and earning power from 30% to 50%.

TULAREMIA INFECTION OF CONJUNCTIVA (CASE REPORT)

Ancil Martin, M. D., F. A. C. S.,
Phoenix, Ariz.

J. F. S., Glendale, married man. Past history has no bearing on the present condition.

On May 14th, a jack rabbit came into his yard, and was killed by a German police dog of the patient. The rabbit seemed to be sick, running into the side of the house. Patient skinned the rabbit and let the dog eat the carcass. He recalls brushing his hand across his eyes while handling the rabbit. Twenty-four hours later patient felt chilly sensations, general malaise; second day temperature was still higher (103.4), there were general body pains, severe headache, vomiting, sweating and septic symptoms. Discovered at this time that there was inflammation of the eyelid. Saw a doctor in the afternoon and again later.

Was seen by me one week after the condition started. There was a large ulcer on the conjunctival surface of the lower lid and several smaller ones on the upper lid; conjunctiva was very red and somewhat edematous, but with little or no induration about the ulcers. Small abscess formed at the inner canthus and this was opened.

The following is the report of the Pathological Laboratory, Phoenix, on the laboratory findings:

Smears and cultures from the ulcers on the conjunctiva and from the pus of the abscess were negative for tularemia organisms, only staphylococci being found. This is the usual result as the B. Tularensis is not to be found on direct smears and does not grow on the ordinary laboratory culture media.

On May 21st, seven days after exposure and five days after infection began, the blood was negative for agglutination of the B. Tularensis. Blood taken on June 3rd, which was 17 days after infection, agglutination was positive in dilutions as high as 1:320, which would establish the diagnosis.

Guineapig inoculated with small amount of pus from the abscess at inner canthus sickened and died one week later. There was an induration at site of injection with cheesy degeneration. The spleen and liver were studded with the fine nutmeg areas which are characteristic of the infection. Second guineapig inoculated from the first one went through the same cycle of symptoms and showed the same pathological findings. Portions of tissue have been sent to the Hygienic Laboratory in Washington for final isolation and identification of the organisms of tularemia which will, undoubtedly, be found in the spleen and liver lesions.

Temperature has been of the typhoid type, down in the morning and up in the afternoon, still running at this time (May 31st) to 101.5 in the afternoon.

The pre-auricular glands were swollen when first seen by me (May 21st), and this was soon followed by enlargement of the anterior cervical group and the submaxillary lymph glands. These are still swollen, very tender and no evidence of suppuration. Skin overlying them and over the cheek of the affected side was reddened. No other glands are swollen. Patient lost appetite and has lost some weight. There are no other lesions except those described.

The climatic conditions at this time are quite similar to those which existed in 1907, when similar cases were seen but not then recognized as tularemia, as this condition as a clinical entity had not then been described. It is quite likely that other cases of tularemia, both of conjunctiva and of general infection, will be found, if they are watched for.

THE PRESENT SITUATION IN THE TREATMENT OF SYPHILIS

William Allen Pusey, M. D.

President, American Medical Association,
Chicago, Ill.

(*Summary of address before the Arizona State Medical Association at its Thirty-fourth Annual Meeting, held in Bisbee, April 16 to 18, 1925.)

The following summary, as published in the Atlantic Medical Journal for January, 1925, has been submitted by Dr. Pusey as representing the gist of his remarks before the Arizona Association:

As our experience with arsphenamin has grown it has been made increasingly evident to us that we have not in it, as at first we hoped, a remedy that is a reliable cure for syphilis, but that it is a remedy which has serious drawbacks to its use. The chief disadvantage, and the one that gives

us most concern, lies in the fact that if arsphenamin is used early in the course of syphilis—before the disease has had a chance to evolve itself completely and thus stimulate the body to the maximum amount of resistance to syphilis that it can produce, but short of curing the disease, a dangerous situation is produced. The patient is not cured of his syphilis but has foci of infection left and his resistance has not been developed to withstand this infection. His resistance may even be reduced and there are many possibilities of the disease running a more serious course than if arsphenamin had not been used.

We were first led to these conclusions of the failure of development of resistance in these cases by the great frequency and importance of early syphilitic relapses in these cases. This clinical conclusion has been remarkably confirmed by the experimental results in a systematic and long series of investigations by Brown and Pearce. The conclusion, then, which clinical experience and experimental evidence forces on us, is that the use of arsphenamin in the early course of syphilis is dangerous if it cannot be used to the point of eradicating the disease. Otherwise it had better be omitted in the early course of syphilis until the disease has had a chance to develop in the individual all of the immunity that he is capable of—that is certainly for the first three months after infection.

There is strongest ground for the belief that mercury not only aids in controlling the course of the disease but that it stimulates immunity. It should therefore be used as heretofore in the early course of syphilis.

NEW MEXICO STATE MEDICAL SOCIETY

Notes of the Meeting

The very first to register was Dr. A. L. Dillon, (Clovis), to whom much of the success of the meeting was due. The first out-of-town physician registering was Dr. O. E. Brown (Tucumcari), who was followed by Dr. C. M. Yater (Roswell). Others registered were Drs. James R. Scott (Albuquerque), Lee Yater (Cleburn, Texas), G. S. Luckett (Santa Fe), H. A. Ingalls (Roswell), D. B. Williams (Santa Fe), J. W. Kinsinger (Roswell), J. W. Hale (Grady), C. B. Elliott (Raton), A. M. Washburn (Camerio), J. W. Stofer (Gallup), C. L. McClellan (Clovis), J. W. Board (Clovis), C. W. Thompson (Pueblo, Colo.), A. R. Hatcher (Wellington, Kans.), H. A. Miller (Clovis), W. M. Lancaster (Clovis), W. G. Hope (Albuquerque), S. G. Von Almen (El Paso, Texas), N. F. Wollard (Portales), J. W. Cathcart (El Paso, Texas), F. A. Dillon (Clovis), W. A. Bristol (Clayton), Charles F. Beeson (Roswell), W. T. Joyner (Roswell), W. H. Jenkins (Denver, Colo.), J. G. Holmes (Alamogordo), P. S. Kaadt (Clovis), F. G. Merrell (Melrose), E. J. Hay (Garrison), A. J. Evans (Elida), J. B. Westerfield (Clovis), P. G. Cornish, Jr. (Albuquerque), J. R. Van Atta (Albuquerque), H. H. Latson (Amarilla, Texas), G. A. Mil-

ler, Vaughn), M. K. Wylder (Albuquerque), Karl A. Meninger (Topeka, Kans.), J. A. Smith (Roswell), E. M. Fisher (Roswell), H. M. Smith (Las Vegas), H. F. Denton (Amarilla, Texas), Hugh T. Brasell, Portales), F. D. Vickers (Deming), D. D. Swearingin (Roswell), R. Kenneth Hoover (Artesia), and H. J. Caldwell (Amarilla).

The High School auditorium was an ideal place for the meetings, being convenient to the business center, easy of access, large, well-ventilated room, with comfortable seats, a good stage, and all necessary accessories convenient.

The social features were thoroughly enjoyed, though the dinner given by the Chamber of Commerce was very nearly spilled by our honorable secretary-treasurer, Dr. Yater, who, when the auto ride was first proposed during the morning scientific session, strenuously objected to abandoning a well-planned scientific program for a ride "across the sand-dunes." Says Yater, "we can get a ride and see the sand-hills any old time, but when can we hear such delightful papers?" When it was explained to him that the trip had been previously arranged by the Chamber of Commerce and that a genuine old-fashioned dinner a la pre-Volstead days awaited the members at Grady, his objections immediately vanished and he wanted to know why the secretary had not been informed. And it was SOME dinner.

A telegram of regret was received from Dr. James Vance (El Paso, Texas), stating that owing to illness it was impossible for him to attend. We were sure sorry, doctor, and hope you will be with us next year at Albuquerque. Now that you have those tonsils out, we expect great things of you.

It was a source of much disappointment that Dr. A. R. Hatcher (Wellington, Kansas), was called home by telegraph before he could read his paper on Radium Therapy. The doctor had favored us with several discussions of papers and we were anxious to hear his own.

Dr. H. J. Caldwell (Amarilla, Texas), Texas delegate, made a very good impression, and his eloquence and straightforward talks were quite convincing.

Among the distinguished visitors was Dr. W. A. Bristol (Clayton), whose 47th (?) grandfather founded the town of Bristol, England, and who can trace his family tree back to 1060. It was impossible to ascertain the doctor's views on evolution.

Among the absentees was one of the regulars—Dr. K. D. Lynch (El Paso), who

was called to Montana a short time before the session began on account of serious illness in his family.

Dr. Robert Day (Los Angeles) was another absentee, and while his splendid paper in "Some Problems in Prostatectomies," which was read by title, will appear in the Journal, it will be without the discussion the paper deserves.

It was very pleasing to observe the attention and diligence of the Boy Scouts assigned to assist the visitors. The boys were most willing and obliging.

NEW MEXICO MEDICAL SOCIETY

Secretary's Report

Roswell, N. M., May 19, 1925.

House of Delegates,
New Mexico Medical Society.

I herewith submit my report for the term ending with this session of the Society.

Report

During the term ending with the 1924 session the state had been so thoroughly canvassed in an effort to bring every reputable physician in the state under the influence of organized medicine that there remained only a few, in unorganized counties, for your secretary to continue his efforts with.

During the year just ending a desperate fort was made to induce these remaining physicians to make application, but only two of them were prevailed upon to come in, and these two I think were new men in the state and did not need much urging.

There are some 15 or 20 physicians located in our unorganized counties that are "still out in the cold."

An order has been placed for the forthcoming edition of the American Medical Directory which should be of considerable help in locating outside members of the profession.

The following is a list of our membership at this time:

Bernalillo County	43
Chaves County	23
Colfax County	15
Curry County	13
Dona Ana County	10
Eddy County	10
Grant County	Uncertain
Las Vegas Society	8
Luna County	7
McKinley County	13
Santa Fe County	18
Union County	12
Members at large	53
Total membership	225
Applications now pending	2

This statement shows a loss of members since our last report to the number of 42, and the causes of the loss, so far as ascertainable are as follows:

Died	4
Left the state	7
Suspended non payment of dues.....	31

This list of suspended members includes the entire membership of Grant County Medical Society, notwithstanding some, if not all, of these physicians have paid their dues but I have, so far, been unable to get their treasurer to remit the full amount of dues, consequently do not know to whom annual cards should be sent. Should Grant County straighten up her dues it will reinstate her membership to whatever number have paid dues.

There are still seven members "at large" in the state who have been suspended (N. P. D.) and who, possibly, may be induced to reinstate before the year is out.

Respectfully submitted,

C. M. YATER, Secretary.

NOTE:—Since the above report was submitted one physician made application for membership during the Clovis meeting and was admitted. Also, Grant County Medical Society has completed settlement of dues for sixteen members and annual cards have been mailed to each. Four of the "members at large," who were suspended, have also reinstated. These, together with 16 from Grant County, three elected at the Clovis meeting, all told, brings the membership of the New Mexico Medical Society up to 248 on June 1st, 1925.

C. M. YATER.

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THE NEW MEXICO MEETING

The complete report of the New Mexico State Medical Meeting, held at Clovis, May 19 to 21, arrived just too late for this issue of the journal. We were able to insert the "Notes of the Meeting," which appear elsewhere, and the full report will be a feature of our July issue

W. W. W.

RES IPSA LOQUITUR

This Latin phrase expresses a legal principle which is of profound moment to the medical profession. Whether the principle of "the thing speaks for itself" shall apply to the result of medical or surgical treatment, when a patient decides to sue a doctor for malpractice, becomes a contested point in nearly every such suit.

In the recent suit against Dr. Butler, of Tucson, where the plaintiff was given judgment for one thousand dollars, the lower court ruled in favor of this principle.

The foundation of Medical Defense is the inability to secure, in any community, expert testimony to the effect that specific instances of medical or surgical treatment were improper, or to the effect that the results which occurred were due to negligence on the part of the doctor. The usual court decision is that the rule of *res ipsa loquitur* should not apply to the results of medical or surgical treatment and the case cannot go to the jury unless there is some supporting expert testimony. If the jury is to be allowed to inspect the results in a case and decide for themselves, by what they see, whether the treatment given was

proper or not, schemes of medical defense are useless.

Dr. Butler's case is being appealed by his attorneys, Curley and Potter, of Tucson, on the argument that this rule was improperly applied when the case went to the jury without supporting expert testimony. There are other grounds for appeal, but this particular one interests the entire medical profession of Arizona.

DR. MADISON MILLIGAN

Santa Fe, N. M.

In the death of Dr. M. M. Milligan, of Santa Fe, N. M., on May 28th, 1925, the New Mexico Medical Society lost the oldest practicing physician in the state and the last living charter member of the Society.

Dr. Milligan was a native of southern Illinois. He graduated from the St. Louis Medical College in the class of '72, and came to Las Vegas, N. M., in 1879, and had practiced in that territory and state for forty-six years.

The Las Vegas Medical Society was organized in 1881, with Dr. Milligan as one of the charter members; it was afterwards merged into the state organization under the name of the New Mexico Medical Society.

Dr. Milligan was a man of constructive tendencies, being a pioneer in many of the industries of the state. He left behind a host of friends to mourn his passing. He is survived by his wife and four children, two sons and two daughters.

DR. ANCIL MARTIN (Phoenix, Ariz.)
"THE FATHER OF TULAREMIA."

In an article on "Tularemia," in the Journal of the A. M. A., for April 25, 1925, Dr. Edward Francis of the U. S. Public Health Service, recounts the history of this interesting disease of rodents which has been found to be transmissible to man.

The item of special interest to our readers is the circumstance that Dr. Ancil Martin, of Phoenix, Ariz., placed on record the first recognized instances of the transmission of this infection from animals to human beings. In the article mentioned above, on page 1246, under the head of "Arizona" is the following:

"The following letter, brown with age, was recently found in a forgotten file by Dr. Frederick G. Novy of Ann Arbor, Mich., who marked it "tularemia" and sent it to me. In the light of present knowledge it constitutes the very first description of cases of tularemia, of which three were eye infections.

Phoenix, Territory of Arizona,
 Sept. 19, 1907.

Dr. Frederick G. Novy,
 Ann Arbor, Mich.
 Dear Doctor:—

There have been during the summer several individuals in this locality who have suffered from an infection as a result of skinning and dressing wild rabbits. They were of the so-called "jack" variety. Three of these persons have had their primary lesion in or about the eye. Small abscesses formed in the lids and on the bulbar conjunctiva as well. In one case the cornea was involved. The preauricular gland being involved as well as the anterior cervical and the submaxillary. At the onset there were chills, profuse sweating and an elevation of temperature of from 2 to 5 degrees, with rapid pulse lasting several days. The glands suppurated and all were evacuated. In one case a nodular condition of the lids still remains. There were no deaths; in fact, the illness was not profound. In one instance the infection took place in the foot, and others in the hands, etc., the adjacent lymphatics being of course involved.

Yours very truly,
 ANCIL MARTIN, M. D."

In a personal letter to Dr. Martin from Dr. Francis, dated April 25, 1925, he says, "this places you in the position of being the father of tularemia."

The study of tularemia was begun by the Public Health Service in 1910, McCoy's first report on the disease in rodents being made in 1911. The Bact. Tularense was identified by Francis and reported in 1912. After the cases reported by Dr. Martin, the next recorded instances of the infection in man were by Pearse in 1911, the condition being called "deer-fly fever." After the discovery of the organism in 1912, several instances of eye infection by the organism have been reported, and this is now a well recognized clinical form of the disease.

Dr. Martin's excellently kept clinical rec-

ords covering more than twenty-five years, permits us to secure a very interesting account of the case forming the basis of his inquiry to Dr. Novy. Under date of July 1907, appears the following:—

"G. W. W., Glendale. Infection from handling rabbits. Ulcer conjunctival surface upper lid, followed by abscesses upper lid, preauricular gland, anterior cervical and submaxillary. Initial symptoms, chills, sweating, temperature at night. Preauricular gland opened by Dr. Roy Thomas. Bacteriological culture from abscess,—streptococci, also a bacillus of short chains, small short bacillus with shrunken capsule; nucleus in each end of bacillus. Diagnosis,—rabbit septicemia."

In a paper read before the Arizona Medical Association, in Prescott, in 1909 on "Infections of the Conjunctiva" (see J. A. M. A., July 17, 1909, p. 228), the following report was made:

"Rabbit septicemia is also a rare infection, the infecting organism being *Bacillus Cuniculicida*.

During the year 1907, rabbits in the Salt River Valley were very numerous. A bounty was offered for their scalps and many men and boys made a business of killing and skinning them. As a result there were numbers of infections. During the summer I had three cases, the seat of primary infection being the conjunctiva. I learned of three other cases, one of which was infected in the foot, another in the finger, and the third at some point about the head, as the lymphatics about the neck were involved.

In the eye infected cases, there was first a red, swollen and edematous conjunctiva overlapping the cornea, and a slight muco purulent discharge. Ulcers of the palpebral conjunctiva appeared, followed by abscesses of the bulbar conjunctiva and of the lids. In one case the cornea was involved followed by hypopyon. A paracentesis was done and the eye recovered with a large leucoma. The preauricular, as well as the anterior cervical and the submaxillary glands were involved. At the onset, there were chills, profuse sweating, and a rise in temperature of from two to five degrees, with a pulse of one hundred and twenty, this condition lasting several days. The glands suppurated and were all evacuated. In one case a nodular condition of the upper lids remained for some months. There were no deaths.

A bacteriological culture from the pus of a lid abscess was made by Dr. Roy Thomas, upon my request, in which was found streptococci and a bacillus of short chains; small, short and with a shrunken capsule. There appeared to be a nucleus in each end of the bacillus. I made a bacterial culture and sent it to Professor Novy of Ann Arbor for examination. A letter from him some weeks later stated that by accident the tube had been neglected and no growth had taken place.

The rabbits died during the fall of 1907 in great numbers. The infecting rabbits were of the so-called "Jack" variety.

This was four years before Francis made his investigations and established the cause of this "rabbit septicemia" to be a new and hitherto undescribed organism (Bact. Tularense), and not the *Bac Cuniculicida* which latter is a member of the hemorrhagic septicemia group in animals and not infectious for humans. Whether the organism isolat-

ed by Dr. Thomas was the Bact. Tularensis, one of the hemorrhagic septicemia organisms, or a contamination, is uncertain. Francis found that the Bact. Tularensis would not grow on the ordinary culture media, as a rule, but could be isolated by animal inoculation and special media.

However, the description of Dr. Martin corresponds so exactly to what was, some years later, found to be the clinical picture of tularemia conjunctivitis, and a recent case by Dr. Martin (see this issue elsewhere), which corresponds exactly to the cases seen by him in 1907, and which recent case has been proven to be tularemia, demonstrates beyond doubt that the 1907 cases were tularemia.

Conditions in Arizona are now quite similar to those which existed in 1907, and cases of tularemia are, no doubt, occurring and remaining undiagnosed. Except for the abrupt onset the clinical course of the disease is very much like that of typhoid, though more protracted. It is quite similar to Malta fever in some respects. It is not necessary to have the glandular enlargements. Several insects are capable of transmitting the infection from rabbits and other rodents to the human being; in fact, any insect which bites both the rodent and the human is capable of transmitting the infection.

The diagnosis is made by the agglutination test and where there are suppurating lesions, by animal inoculation. Cultural examinations are usually worthless for diagnosis.

NEW FACTS ABOUT CANCER

Doctors everywhere have to give some sort of answer to the ever recurring question, "What do you know about the cause of cancer?" Usually the answer is evasive or frankly to the effect that we know nothing. There is good reason to believe that this period of darkness is due to be dissipated by some illuminating and well established facts. There are at the present time two ideas fairly well in the foreground. One of these is championed by Ochsner and associates who are advancing some plausibly sounding reasons in support of the parasitic etiology for cancer, claiming to have fulfilled Koch's requirements for the establishment of a bacterial cause of the disease. This theory does not meet with the sympathetic reception which is being accorded the combined heredity-irritation idea, which latter has a more formidable array of experimental observations to support it. A very recent presentation of this is given by Nakahara in *The American Mercury*, from which we quote:

The road of cancer research has not proved to be a blind alley, and the fact that it has not is due mainly to animal experimentation.

Nakahara's studies show that a general change can be artificially produced in animals which will enable them to suppress, to some extent at any rate, the growth of tumors. This study has opened a new field of therapeutic investigation. The medical profession has long hoped and endeavored to discover some drug or serum which would cure cancer, but this has not been found. Since cancer is an overgrowth of the body cells and consequently has the same biological make-up as the latter, how can its cells be destroyed without at the same time endangering the health of the patient? This difficulty can only be overcome by attacking the cancer indirectly through the agency of the animal's resistance, and a reasonable starting point for research along that line has now been established.

In the field of radiotherapy x-rays and radium have been used with fairly satisfactory results for the treatment of superficial cancers. By an ingenious scheme, originally devised by Duane, it is now possible to take up emanation from radium in fine glass capillaries and insert a number of these needles in and about the cancer, thus bringing the action of the emanation to more nearly its full play. There is not the slightest doubt that this method is proving of great value in the treatment of a certain class of cancers.

Recent studies, especially by Maud Slye, on spontaneous mouse tumors have established beyond dispute that the tendency to produce cancer is hereditary. Miss Slye first established strains of mice in which among many hundreds of individuals and through more than twenty-five generations, not a single cancer appeared. At the same time, by means of close inbreeding, she developed other strains in which cancer occurred in one hundred per cent of all females. She then proceeded to test the mode of inheritance of the tendency to produce cancer by crossing these definitely cancerous and non-cancerous strains. The result was that F_1 , or hybrids of the first filial generation, never showed cancer, it being apparently recessive according to the Mendelian Law. But when these F_1 individuals were bred together their offspring developed cancer in proportions corresponding quite closely to the Mendelian expectation. Furthermore, Miss Slye was able to extract from the hybrid cross not only a strain of mice which were entirely non-cancerous, but also two other strains: the cancer strain with one hundred per cent cancer incidence, and the so-called heterozygous or hybrid strain, producing both cancerous and non-cancerous mice. A non-cancer strain never showed cancer unless cancer had been bred in from a cancer line, while the cancer line maintained a one hundred per cent cancer rate throughout a great many generations. In the hybrid line the occurrence of cancer was held off so long as selective breeding with non-cancerous males was continued.

Now that it has been experimentally demonstrated on the one hand that heredity determines the incidence of cancer, and on the other hand that irritation is an external agent capable of inducing the cancerous transformation of tissues, it can be said that the cause of cancer lies in the reciprocal action of these two factors. That is, while the action of irritation, if violent enough, may overwhelm the hereditary predisposition to cancer, causing all the individuals exposed to such an action to become cancerous, under a more normal condition of living heredity will play the deciding role.

It has long been held that the cause of cancer is entirely unknown. This conception is erroneous,

for the results of recent experimental studies have shed a not inconsiderable light on the problem. We now know that animals of a given hereditary constitution develop cancer spontaneously. We also know that sufficient local tissue irritation will induce cancer in animals which are naturally non-cancerous. On the basis of these facts are we not justified in stating that these experimental results have raised our knowledge on the cause of cancer to a level nearly equal to that of our knowledge of other diseases, the causes of which are said to be known? We are, of course, entirely ignorant of the exact biochemical mechanisms whereby cancerous growth is initiated and maintained. This remains a problem for future investigation, and in proportion to the difficulty involved its attraction grows for men of science.

To sum up, scientists have so far uncovered two causes of cancer—heredity and irritation. No absolute cure for all types of cancer is known, but in the increase of resistance to cancer there lies a most important lead. While we have, as yet, not succeeded in wholly ameliorating the sufferings of humanity from this dreadful disease, it can be stated with assurance that future experimentations will disclose all its secrets. By means of rigid experimental work we are discovering new facts from time to time. This process, if kept up for a long enough period, cannot help uncovering all.

EL PASO COUNTY MEDICAL SOCIETY H. H. VARNER, Sec'y. APRIL 4, 1925

This was a joint meeting of the El Paso County Medical Society and the Southwestern Dental Association, who held a three-day convention in El Paso. There were 160 present. The reading of the minutes and other business of the evening were dispensed with, and the program of the evening was given by the Southwestern Dental Society.

Dr. Arthur Black, Dean of the Northwestern University Dental School, discussed "Mouth Infections in Relation to General Health." In his opening remarks, Dr. Black said this subject has received considerable attention from both the medical and dental professions during the past ten or fifteen years. It is one that has been recognized for a great many years. Proof of the early recognition of the importance of infected teeth is found in the literature when one of the ancient kings of Assyria had his physician brought before his court because the king did not recover from "Rheumatism." Then it became the grave duty of his physician to inform the court that it would be necessary to have all of the king's teeth pulled, as that was the origin of his suffering. Benjamin Rush, in his "Practice of Medicine," published in 1818, devotes some space to this subject and cites cases that were cured of various diseases following the extraction of their teeth.

Dr. Black discussed at some length the anatomy of the teeth and the mode of infection, illustrating his talk with diagrams. The pathology of these infections differs from the pathology in any other region of the body due to the tissue that covers the root of the tooth, the cementum. The infection is carried down to the root of the tooth by the lymphatics and eventually destroys the peridental membrane and finally the cementum. It is the latter that maintains the chronicity of the infection, and these infections cannot always be diagnosed by means of the x-ray alone. In the chronic diseases it may take considerable time and study to determine if a local infection exists. Of-

ten the physicians do not go into these examinations as thoroughly as they should in order to determine where some local infection might exist, other than the teeth. Too much hope should not be given in the rheumatism and arthritis cases, as the removal of the original local focus will not cure a secondary infection that is already present. There are a great many men in both the dental and the medical groups who have been too radical in the extraction of teeth, only to be disappointed in the results.

Dr. Black said that in a series of 600 adults who were not being treated by a dentist that 75% had some type of infection demonstrable by the x-ray and 53% had one or more pyorrhea pockets with bone involvement. The high percentage of chronic infections in adults is due to neglect.

To correct and prevent this high percentage of mouth infections, Dr. Black said, is a community problem which needs the united efforts of dentists and physicians. About 10% of the people have periodic mouth examinations, and these are chiefly fostered and financed by large industrial institutions. Educational health programs in schools, with the services of a dental hygienist to train the children in the care of their teeth, will make considerable progress. Dr. Black cites some community work that is being done in Bridgeport, Conn., along this line, in the public schools. This work was begun in 1912 under the direction of dental hygienist in the schools. There has been a marked reduction in dental cases, as well as a decrease of communicable diseases.

Discussion by Drs. Gallagher, Craige, Waite, Casellas, Scott and Rawlings.

Closing the discussion, Dr. Black said the following in answer to questions: "Pyorrhea teeth vary in looseness on different days. If the infection increases and becomes acute, or if the tooth has a considerable amount of looseness, it should be extracted. Milk teeth should be saved if possible until the normal time of shedding, especially of the molars, to prevent irregularities of the permanent teeth. However, if the infected tooth does not respond promptly to treatment it should be extracted. I would not advise any diet during pregnancy for benefit of the child's teeth except a normal, balanced diet. There is no difference in teeth, as hard and soft, as sometimes so called. There are no statistics showing any difference in teeth of bottle fed and breast fed babies. Hutchinson's teeth frequently associated with syphilis may result from any form of undernourishment during the first year of life. Syphilitic babies are usually poorly nourished. There is no difference between a granuloma and alveolar abscess as shown by the x-ray. The treatment of both is the same"

Adjournment.

APRIL 13, 1925

There were 15 members present and two visitors. The minutes of the last meeting were read and approved.

The application for membership of Dr. T. Armendariz was read before the Society. Motion made by Dr. Hugh Crouse, seconded by Dr. Barrett, that Dr. Armendariz be elected to membership. Carried.

Dr. G. Werley showed a case of blastomycosis in a Mexican boy 12 years of age. The case was first seen in September, 1924. There are two open sinuses at the present time and two healed lesions. The patient has improved under treatment with iodides and x-ray.

Dr. G. Werley read a paper on "Coronary Infarct and Coronary Occlusion." Dr. Werley made

some general remarks about the frequency of occurrence of cardiac disease found in 200 autopsies. He reported seven cases of coronary infarct and coronary occlusion seen postmortem and a number of cases that recovered. It was emphasized that death in anginal cases is generally due to coronary obstruction. The prognosis for temporary recovery depends upon a prompt diagnosis and prolonged absolute rest. Many cases of death from so-called acute indigestion, ptomaine poisoning, "heart failure" and the like, are really due to coronary infarct.

Dr. Hugh Crouse reported a case of cavity in the right chest in which the esophagus, heart and arch were pushed over into the chest cavity.

Dr. Harry Leigh reported a case of cavity due to tuberculosis in the right chest of a child nine years old, in which the heart was pushed over into the chest cavity.

Dr. R. A. Wilson reported a case of Madura foot and showed pictures of case.

No further business. Adjournment.

APRIL 20, 1925

The meeting was called to order at 8:00 p. m. by the president, Dr. John A. Hardy. The minutes of the last meeting were read and approved. There were 22 members present.

The secretary read a letter addressed to the president of the society from Mr. Chas. R. Loomis, chairman of the Masonic Hospital Nurses' Home and School of Nursing, extending an invitation to the El Paso County Medical Society to participate in the laying of the corner-stone of the new Nurses' Home on National Hospital Day, May 12, 1925. The ceremonies are to be in charge of the Most Worshipful Grand Lodge of the State of Texas. The opening ceremonies will take place at the Five Points Lodge 1137 A. F. & A. M., at 5:45 p. m., and the laying of the corner-stone at about 6:30 p. m.

The secretary read a letter addressed to the president of the society, from Mrs. Fred E. Stevenson, president of the Cloudercroft Baby Sanatorium, to suggest the name of a physician to serve in the sanatorium during the present summer. The board of the sanatorium solicits the cooperation of the El Paso County Medical Society in recommending the Cloudercroft Sanatorium. The board will be glad to keep them informed as to the progress of the sanatorium by means of a monthly report, if it is the wish of the society.

Application for membership of Dr. Eugene B. Clark was read before the society. Motion was made by Dr. Gallagher that Dr. Clark be elected to membership. Seconded by Dr. Barrett. Carried.

Dr. W. L. Brown read a paper on "The Undiagnosed Compressed Fractures of the Vertebra." Dr. Brown will read this paper at the State Medical meeting in Austin. Dr. Brown brought out the points in his paper that these cases are frequently overlooked at the time of injury because of the absence of symptoms. Then after two or three months symptoms and deformity appear and cases are often classed as malingerers. To make the diagnosis with the x-ray it is necessary to take a lateral view to show the fracture. The treatment consists of fixation after the correction of the deformity, if possible, and held until nature heals the bone, this taking at least six months. Dr. Brown cited five cases and showed x-ray pictures of fractures.

Discussed by Drs. Cathcart, Cummins, Casellas, Ramey and Strong.

Dr. Harry Leigh read a paper on "The Study of Apparently Healthy Children of School Age

Who Are Highly Sensitized to Tuberculin; A Preliminary Report." Dr. Leigh will present his paper at the meeting of the Texas State Medical Association in Austin. Dr. Leigh presented a large series of statistics on these cases which have been under his observation for the past four years. Dr. Leigh's observations show that a much higher percentage of these children are highly sensitive to the tuberculin reaction than is ordinarily suspected, and they should be kept under observation and treatment for a long period of time.

Discussed by Drs. Laws, W. W. Britton, McCamant, Casellas, Riley, Rawlings and Scott.

Dr. W. L. Brown reported a case of tuberculous peritonitis in a woman 28 years old, occurring six years ago. The abdomen was opened and tuberculous infection found. The abdomen was closed and heliotherapy used. The patient made a good recovery and was not seen again until recently, when the patient stated she had not had any further trouble of her old condition. When seen three weeks ago, the patient looked critically ill. There was an enormous enlargement of the liver, which began two years ago. The right lung was compressed, the left, normal. Wassermann negative. Leukocytes 96,800. Polys. 86%. No rise in temperature. Under local anesthesia an abdominal incision was made and the liver aspirated, but no abscess was found. The patient died ten days later and at an autopsy an enormous liver was found, probably amyloid. (Path. report not complete.) There was no evidence of the tuberculous peritonitis remaining except for a few enlarged mesenteric glands.

Dr. T. J. McCamant made a motion that the society pay the State dues of Dr. Howard Thompson, an Honorary Member of the Society. Seconded by Dr. Gallagher. Carried.

APRIL 27, 1925

The meeting was called to order at 8:00 p. m. by Dr. John A. Hardy, President.

Dr. F. D. Garrett's paper, "Acidosis and Insulin," was read by the Secretary. Dr. Garrett reports several cases of acidosis in which insulin was used with excellent results. He thinks insulin can be used in acidosis, certain cases of pernicious vomiting of pregnancy with results equal to its use in diabetes.

Discussed by Dr. E. A. Duncan.

Dr. Hugh Crouse read a paper, "Cancer Treatment, A Regional, Type and Period Problem." Discussed by Drs. Cathcart and Miller.

Dr. W. W. Waite read a paper on "Four Primary Pigmented Tumors of the Lungs in 210 Autopsies." Discussed by Drs. Miller, Crouse and Cathcart.

Motion was made by Dr. Cathcart that the delegates to the State meeting go uninstructed. Seconded by Dr. Miller. Carried.

Dr. J. W. Laws made a plea for the support of the work of the Gateway Club by the doctors of El Paso, not only in financial, but in moral support.

Adjournment.

MAY 11, 1925

The meeting was called to order by Dr. John A. Hardy, president, at 8:00 p. m. There were twenty-six members and two visitors present. The minutes of the last meeting were read and approved.

Dr. Cummins announced that it was desirous to have the members of the Medical Society in the parade at the laying of the corner-stone of the new Nurses' Home at the Masonic Hospital at 6:00 p. m. on May 30, 1925.

Dr. G. Werley showed a case of tuberculous cervical glands in a young Mexican woman. There were several scars from old sinuses now healed. The patient shows a strong reaction to tuberculin, and has shown improvement with small doses of tuberculin.

Case discussed by Drs. R. B. Homan, F. P. Miller, E. B. Rogers, J. D. Riley and Scott.

Dr. W. W. Waite read a paper on "Syphilitic Aortitis." Dr. Waite's paper was based on 21 cases studied from 210 autopsies. These cases are often diagnosed but when examined post mortem the findings are often not as anticipated and the cases are not all alike. He believed all cases of aortic aneurysm are caused by syphilis. He dealt at some length with the anatomy of the aorta, showing slides of normal aorta and of aortitis. He also showed pathological specimens of the cases on which his paper was based. Of these cases only two showed aneurysm of the abdominal aorta, while the most frequent site of attack is just above the aortic valves and the arch of the aorta. The reason for the frequent attack at this location he believes is due to the difference in the blood supply to the aorta itself. In this region there is a long delicate blood supply different from that in the other portions of the vessel. The infection is similar to a serpiginous ulcer past healing as new parts are being attacked. The intima is first thickened and there is round cell infiltration around the vasa vasorum which gradually obliterates these vessels, the elastic layer suffering most. The damage done depends upon the manner of the attack and the location. In the descending aorta the attack takes place gradually and the damaged tissue has an opportunity to be repaired with fibrous tissue. In the ascending aorta, due to the delicate blood supply, the advance is more rapid and if the attack is severe enough an aneurysm begins when the elastic layer is destroyed.

Discussion by Drs. Scott, Werley, Rogers and Riley.

Adjournment.

MAY 18, 1925

The meeting was called to order by Dr. John A. Hardy, President, at 8:00 p. m. There were 25 members and two visitors present. The minutes of the last meeting were read and accepted.

The secretary read a letter from Dr. W. L. Brown in which he stated he had requests for four physicians for mining practice in the United States and Mexico.

Dr. W. W. Britton read a paper on "Tuberculosis of the Cervical and Thoracic Glands." Dr. Britton's paper brought up a very timely subject and was discussed at length by those present. He brought out in his paper the probable mode of infection, diagnosis and treatment, placing particular emphasis on building up the general condition of the patient in addition to the other measures that might be instituted.

Discussed by Drs. Hendricks, Leigh, Werley, Riley, Homan, Miller and Vandever. The following points were brought out in the discussion: The diagnosis of the tracheobronchial glands is often difficult to make with the x-ray until it is well advanced. The diagnosis is not always made by the size of the glands, but blocking of the lymph will cast a shadow in the x-ray picture. This may be caused by other conditions in children, but not in adults. Soft stereoscopic plates are the most desirable.

The recent pathological study of tonsils that have been removed indicate a rather frequent infection of the tonsils with tuberculosis. Cases

having tonsils infected with tuberculosis rarely ever show any further spread of the disease after tonsillectomy. Children who have enlarged glands should be subjected to careful examinations and methods of treatment begun early in those cases found to be of a tuberculous nature. These cases should be followed carefully, as a great many cases of glandular tuberculosis, especially in children, develop pulmonary tuberculosis later in life.

The intradermal method of using tuberculin appears to be the most reliable method for testing for the reaction to tuberculin. The treatment of these cases with tuberculin is promising in those cases of cervical adenitis in children and young adults, but is of less value past these ages. Does the same improvement occur in the treatment with tuberculin of the thoracic cases as with the cases of cervical infection? The advent, in recent years, of other methods of treatment have diminished the number of cases of cervical adenitis being treated by surgery. The treatment by surgery is a major procedure and is more difficult after cases have been subjected to x-ray treatment, however the majority of the cases coming to the surgeon now have already had one or more methods of treatment used. With the advance that has been

Dr. John W. Tappan, Surgeon, U. S. Public methods, surgery still has its place for the treatment in cases of cervical adenitis.

Dr. John W. Tappen, Surgeon, U. S. Public Health Service, read a paper on "Public Health Problems Along the Texas-Mexico Border." This paper was read at the meeting of the Texas Medical Association before County, City and Public Health Officers. This paper, while not strictly confined to the medical phase of the work, presented some facts that are of particular interest to those of us who are located on the border. There are about 1200 miles of this border and frequently long distances between ports of entry, and in addition the tax on entering through the regular ports of entry makes illegal crossing from Mexico the most popular route, and estimated about 20 to 1. National quarantine laws are against cholera, yellow fever, plague, anthrax, small pox and typhus fever. Quarantine laws protect against bringing these diseases into the United States, preventing their spread from state to state and from spreading the disease wherever there is an outbreak. The principal problem, therefore, because of existing conditions, is to deal with those cases that have already entered the United States. This requires constant supervision and close cooperation between Federal government, state, county and municipal health authorities. With these agencies cooperating, there is little danger of an outbreak to any great extent along the border. During the past, the Public Health Service has had excellent cooperation from the state, county and city health authorities and this has been largely responsible for the success of the work along the border.

Dr. Hugh Crouse, Chairman of the City-County Hospital Committee of the El Paso County Medical Society, made a report to the society as to what work has been done by the committee and what has been accomplished. He reports that examination questions are now in the hands of the Hospital Board, ready for the staff examinations as soon as the time and the committee to give the examinations have been decided upon. It was decided that this was the duty of the Hospital Board and not of the Committee.

Dr. R. B. Homan made a motion that the examinations be given in sections rather than a general examination in all subjects. Seconded by Dr. Vandever. Carried.

Dr. C. M. Hendricks made a motion that all of those who intend to take the examination should select five men from the society who were not going to take them, to hold the examinations. Seconded by Dr. B. F. Stevens. Motion lost.

Dr. Hugh Crouse made a motion that the president appoint three members to select an examining committee. No second. Lost.

Dr. Crouse made a motion that the question of conducting the examinations for staff positions be referred back to the Hospital Board. Seconded by Dr. R. B. Homan. Motion carried.

Dr. Hugh Crouse tendered his resignation to the Society as a member of the Society City-County Hospital Committee. Dr. Crouse's resignation was accepted with regrets, since Dr. Crouse has been untiring in his efforts while a member of this committee. Dr. J. W. Laws, already a member of the Committee, was appointed Chairman of this committee and Dr. C. M. Hendricks was appointed to serve on this committee.

Dr. Cummins in the chair, Dr. Hardy made a motion that the Medical Society City-County Committee confer with the Hospital Board about staff examinations and report back at the next meeting of the Society.

Dr. C. M. Hendricks reported a case of pulmonary actinomycosis.

Dr. M. F. Bledsoe, retiring president of the Texas State Medical Association, was a guest of the Society. Owing to the recent illness of Dr. Bledsoe, he addressed only a few remarks to the Society and made a short discussion of Dr. Tappan's paper.

There being no further business, the meeting adjourned at 10:30 p. m.

MAY 25, 1925

The meeting was called to order by Dr. John A. Hardy, President, at 8:00 p. m. There were 21 members and one visitor present. The minutes of the last meeting were read and approved.

The secretary read several letters.

Dr. W. M. Branch read a paper, "Immunity in Lobar Pneumonia." Dr. Branch cited statistics showing that considerable reduction in the occurrence of lobar pneumonia following the use of the Pneumococcus vaccine 1, 2 and 3. Dr. Branch reports 200 cases of pneumonia treated with vaccine during the past six years, without a relapse, complicating empyema or a second attack. He concludes that lobar pneumonia treated with vaccines carries with it an active immunity which lasts for at least six years. Revaccination is recommended.

Discussion by Drs. Werley and Turner.

Dr. W. E. Vandevere read a paper, "Sinus Infections: Etiology, Diagnosis and Treatment." Dr. Vandevere discussed very thoroughly the etiology, diagnosis and treatment of sinus infections. The paper brought out considerable discussion by the Society.

Discussed by Drs. Davis, Gray, Gallagher, Cummins and Leigh.

Report of the Society Hospital Committee: Letter from the Hospital Board stating that the staff continue in force until a change is suggested by the Medical Society, the staff or the Hospital Board.

Motion by Dr. Cummins: "That the Society Hospital Committee consult with the Hospital Board and find out the number of physicians they want on the Board and make arrangements for the examinations." Seconded by Dr. W. L. Brown. Motion carried. Discussion by Drs. W. L. Brown, Miller, Cummins, White, Werley and Gallagher. Adjournment.

ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING

The regular monthly meeting of May 16th, was a joint meeting with the Maricopa County Medical Society. It was the final meeting of the spring season for both organizations. Twenty-one members and two of the Sisters from the hospital attended.

The topics for discussion came under three heads: Brain Abscess; Cesarean Section; Blood Transfusion.

The case forming the basis for discussion of brain abscess was as follows:

CASE I.

Sister R., 64, teacher, entered hospital April 18th. F. H. not given.

P. H.: Had diphtheria at 14; was nervous and delicate until 18; had typhoid 23 years ago; was sent to Arizona as a tuberculous patient 13 years ago. Thirty years ago developed a suppurative condition in left inner ear, for which there was no known contributing cause. Since that time there has always been more or less complaint in this ear. Six years ago, when using drops, made a mistake and used carbolic acid, sustaining a bad burn which was followed by total deafness in this ear.

P. I.: Early last fall, while in California, acute pain developed in ear, subsiding after several days, but came on again in March, gradually growing worse. Patient says the most uncomfortable symptom during these years has been the presence of noises in the head, so great at times that she believed them to be made by people about her.

P. E.: Complete atresia of canal on left side, except for small perforation in Schrapnell's which was occluded by a small piece of cotton; when cotton was removed there was a copious pulsating discharge. There is severe pain in region of mastoid, radiating over face and back toward occiput, requiring opiates to relieve. Mastoid very tender and tender points posterior to mastoid region. Patient has septic appearance; there is extreme tenderness along the sterno-cleido-mastoid muscle on left.

Blood count April 19, 9,900, 78% polys; on 20th, 8,300, 74% polys. Urine normal.

X-ray examination was not conclusive for active bone infection, there being eburnation on both sides, with loss of detailed bone structure.

Patient was kept under observation, but pain continued and operation was done April 27th. Radical mastoid on left. Cortex was very dense, mastoid being ebonized. Some granulation tissue posterior to the mastoid, removal of which revealed an extradural abscess. Antrum was deeply placed and was filled with pus and granulation tissue. Ossicles were in large part necrotic and destroyed. There were no dehiscences in tympanic cavity or mastoid antrum.

The day after operation cell count was 21,600 with 88% polys and there were symptoms of meningitis. Spinal fluid on 29th showed cloudy fluid, with 2000 cells per cu. mm., and streptococci on smear and culture. Patient died on 30th.

Autopsy: Head only examined. Skull cap removed in usual manner. No marked increase in spinal fluid, but this was distinctly cloudy. Recent inflammatory exudate was found over both parietal areas and to a greater extent on the basal surface. On the basal surface of the temporo sphenoidal lobe on the left, adhesion was found to the dura, and on removing brain, tearing of superficial brain substance occurred. Definite softening and fluctuation was felt on palpation of this lobe and incision an abscess was found occupying the center of this lobe.

and lying directly above the petrous portion of the left temporal bone. No definite sinus through this bone could be made out. The abscess had rather firm walls due to inflammatory reaction and some fibrosis and had evidently existed for some period of time. No connection with the lateral ventricle could be made out. Diagnosis: Cerebral abscess; diffuse streptococcic meningitis associated with chronic mastoid infection. (H. P. Mills).

Discussion was opened by Dr. McLoone: The symptoms seemed to indicate the extension of an extra-dural abscess to the meninges, which was not the case. Evidently there was a walled off abscess and there being no dehiscence, it was not flared up after the operation. According to Dr. Mills, the abscess may have been present for a year or more. I have been criticised for doing too many mastoids; this is a good lesson to the contrary. If this woman had been operated five years ago, when she had her acute trouble, she never would have had the abscess. Every chronic mastoid was at one time an acute mastoid.

Question: If the patient had an abscess extending back over a number of years, why could not the abscess have caused the mastoiditis? Ans.: The natural course is for the mastoiditis to cause the abscess; if not, we still would have to find some cause for the abscess.

Question: Is not the rise in blood count from 9000 the day before operation to 21,600 the day after unusual? Ans.: The meningitis the next day accounts for the rise in white count; the average mastoiditis, giving lots of pain and other symptoms usually has a count of 10,000 or 12,000; if it jumps to 20,000 we suspect thrombosis, abscess or some other complication.

Dr. Bannister: The interesting thing is the very common thing in abscess of the brain; that is, that there are no symptoms. Have seen many autopsies in which brain abscess was found and had never been suspected during life. Have seen one or two here that were never diagnosed prior to autopsy. Tumors of the brain usually give definite localizing symptoms but abscess does not. No one can tell how long this abscess has been present, may have been present five, ten or more years, yet she had no symptoms calling attention to that part of the brain; the only symptom was noises which might have arisen in the internal ear.

Dr. Stroud: I recall one case which had a history about like this one, in which the surgeon said it was an old neglected case, resulting from old mastoiditis allowed to go on. There was a sinus thrombosis which was opened; patient had about the same stormy time as this one after operation, had meningitis, and we found abscess in about the same location as this one. The surgeon said it was an old abscess, and the patient had complained of very few symptoms. Have seen several that went along without symptoms and they were all mastoid cases originally.

Two cases were presented as the basis for the discussion of Cesarean Section:

CASE II.

Multipara, age 34, admitted April 12th.

P. H.: Has had three normal deliveries and two premature ones, the last of these being a Cesarean.

P. I.: No adequate history, no record of any physical examination, or symptoms.

It is stated in the pre-operative record that patient is 7½ months pregnant and that there is placenta previa. Patient was brought to hospital in ambulance and operated immediately on arrival.

Abdominal Cesarean section under nitrous oxide anesthesia was done. Baby weighed 4 lbs. 8 ozs.

Recovery was apparently uneventful, mother and baby being discharged on April 28th, baby's weight then being 4 lbs. 4ozs.

CASE III.

Mrs. L., age 33, entered hospital on Jan. 28th.

P. H.: Seven years ago, she had pleurisy with effusion, one quart being removed. At that time she had teeth extracted for abscesses. Four years ago she had flu in Washington, D C., and shortly after this Drs. Otis and Spinney in Boston diagnosed pulmonary tuberculosis; in 1920 she was in sanatorium in Massachusetts for 6 or 8 weeks. Since October, 1923, she has been under the care of another physician in Phoenix, except during the past summer when she was at her home in Maine. She had travelled extensively instead of resting. Voice has been absent since Jan. 1st., 1925.

P. I.: A pregnancy of seven months, last menstruation being on July 9, 1924, making her term due April 15th.

P. E.: Examination of the larynx shows rather advanced tuberculosis. She also has almost universal tuberculosis of her lungs, the greatest destruction being evident throughout the left lung, and least in the lower right.

She was told that the chances for her recovery were remote; that she should have complete hospitalization and rest, with appropriate treatment for the throat; that as she is now seven months pregnant she should continue to term if possible; that it may be advisable when, or if, she comes to term, to deliver her by abdominal section; that her child must not be allowed to remain with her after birth.

X-ray of chest showed the densities of an active and extensive tuberculosis, most advanced on the left. Radiograph of abdomen showed fetus, with head and arms in the pelvis, spine and breech extending out of pelvis on left; development indicated that pregnancy was not beyond the seventh month.

Patient continued under hospital care with appropriate throat treatment and observation of urine and symptoms. When pain with some show of blood started on March 8th, patient was taken to surgery and Cesarean section done under local anesthesia, living child weighing 5 lbs., being delivered. Mother lived two days and died on the 10th. Child survived and was discharged on March 21st in good condition.

Secretary: History in the first case is very incomplete and none of the doctors connected with the case are present. Dr. Palmer was the surgeon. It was evidently a placenta previa case and was operated as an emergency. Dr. Smith was the surgeon in the second case.

Dr. Willard Smith: In addition to the facts recorded here would like to say that this woman had been married twice; had child 14 years old by first husband; second husband 67 years old. Her physician had been treating her for tuberculosis by giving her Epsom salts twice a week. I want you to know that there are doctors like that in the community to whom people entrust their lives.

We delivered her on Sunday and she said that following the operation, her laryngeal pain went away and she was perfectly comfortable. The next day she began to have some diminution in urine and by the second day she had anuria and the day after went into uremic convulsions. The child survived; Dr. Thayer had charge of the child and obtained a wet nurse. The 67 year old father insisted on taking it away from the wet nurse. Some relatives took the baby east, do not know what they fed it, but a letter received twelve days later saying the baby had arrived safely and weighed 16 lbs. 8 ozs.

All we expected to do with this woman was to use

her as an incubator to bring the baby as near to term as possible, and junk her as soon as the baby was removed.

Dr. Bannister: In a conversation with the secretary I told him I would sometime like to get hold of all the histories on the Cesarian sections done in the hospital for the past few years, study them and discuss the indications and contra-indications. I believe there are many cases done here when the woman could be delivered in the normal way. In this second case, would the woman have died quicker, or the child have had less chance with normal delivery. I know of several women who have had Cesarian sections here and then had normal deliveries afterward; one of these ruptured the uterus. Was taught that the indications for Cesarian section are very limited and it seems that this limit has been set aside and anybody who wants Cesarian section in this hospital can get it.

Dr. Stroud: Have done two Cesarian sections under local anesthesia during past year; both were primipara and both were in eclampsia; one had had 14 convulsions; both were near term, each with rigid os and unconscious; neither had had labor pains. One was practically moribund. Believe that Cesarian section was less risk than giving an anesthetic and using forceps. Do not believe that both mother and child could have been saved in either case in any other way. With rigid os and labor not yet started at term, when patient goes into eclampsia, after three or four convulsions, believe Cesarian is indicated.

Dr. Bannister: Believe that eclampsia and placenta previa are both indications for Cesarian, or in a pelvis so distorted that it does not seem possible to get a live baby through it. However, I believe there have been as many Cesarians done in this hospital without these indications as there have been with all of them.

The subject of Blood Transfusion in Anemias was brought up for discussion based on the following two cases:

CASE IV.

R. B., age 31, Canadian, married, entered March 30th.

P. H.: No illness that he can remember until September, 1918, he vomited blood; general bad feeling but no more vomiting of blood until on boat returning from France nine months later. No diagnosis. Got along pretty well for year and a half after return from France, when he had another hemorrhage from stomach. Diagnosis of splenic anemia Jan. 23rd and spleen removed by Dr. Jas. Stewart, of Topeka, Kans. Had ascites for one year before removal. Has had ten transfusions of whole and citrated blood since 1923, three to nine months apart. Has been off work since August, 1924; had two transfusions at that time. Has been working the past two weeks.

Present Complaint: Pain in the epigastrium on left side close to ribs, 4cm. from median line. Severe headache base and vault. Tarry stools beginning this a. m. (March 30th). Went to bed feeling all right last night.

Phys. Exam.: Skin sallow, lemon yellow, slight dullness in flanks, no enlargement. Operative scar of splenectomy in good condition. Temp. 101, pulse 100. Blood: reds 4,120,000, whites 19,800, 86% polys. Hbg. 70%.

Kept under observation until April 10th, when blood count showed reds 2,960,000, whites 26,900, microcytes, macrocytes, poikilocytes and polychromatophilia, Hbg. 50.

April 12th, 500 c. c. of citrated blood was trans-

fused. On 14th reds were 3,270,000, whites 14,700, a few macrocytes and some normoblasts, Hbg. 60.

On 17th, reds 3,500,000, whites 15,300, Hbg. 65.

On 20th, reds 3,890,000, whites 17,900, Hbg. 70.

CASE V.

W. D., age 63, single, admitted April 1st.

F. H.: Patient was never in condition to give a history; his sister furnished such information as she could. One brother killed in accident; one sister died with pernicious anemia; mother died with Bright's disease; father died with measles.

P. H.: As nearly as sister knows, the illness began ten years ago, the presenting symptom being pain in the lumbar region which has persisted up to the present. There was a slight operation performed at this time on the genito-urinary tract, under gas anesthesia, the nature of operation not being known to her. For a short time after this he improved, and was able to go about his duties for two years, under the care of physicians. Eight years ago he went to Mayos and advised to have right kidney removed; he prepared to do this and then changed his mind. Two years ago it was necessary to have some teeth extracted due to pyorrhea; this was done under novocain. The following morning the tongue and gums were bright red in appearance, and from that time he has never regained strength; has become pale and generally weak. Patient entered hospital in an extremely weakened condition.

P. E.: Skin very pale, heart enlarged in all directions, spleen and liver enlarged. Other vital organs negative.

Urine showed a few pus cells and trace of albumen.

Blood, reds 960,000, Hbg. 25%; color index, 1.38; white cells 4,600. Slight poikilocytosis, polychromatophilia, few microtes, many macrocytes. Blood group II.

Two blood transfusions were done, but without perceptible effect, patient expiring on April 28th.

Dr. Watkins: The particular point which I wish to make in connection with transfusion is this: It is usually regarded as sufficient to know that the patient and donor are in the same group, or that the donor, is Group IV, known as the universal donor. Group IV cells are not agglutinated by the serum of any other group, and it has been regarded as safe, whenever the injected cells are not agglutinated by the patient's serum. Mr. Boynton, in our laboratory, however, has demonstrated to our entire satisfaction that this is not sufficient; that we must test the patient's blood and the donor's blood against each other for the presence of hemolysis in either of them for the other. If the patient's serum hemolyzes the donor's cells, it is of little value to inject those cells; conversely, if the donor's injected serum hemolyzes the patient's cells, it is dangerous to inject that donor's blood, even though it is in the same group. We, therefore, are insisting on testing the bloods against each other, rather than grouping them.

Dr. Stroud: Recall a case where the report from the laboratory was that patient was Group I and donor was Group IV and therefore safe to transfuse. We had a beautiful time and a terrific reaction, and it may have been because of this hemolysis.

Dr. Mills: The practical method of doing transfusions is to have a group of prospective donors and then test them against the patient's blood. In the last group tested out, there were seven or eight and of these only two could be used. The first case looks like a splenic anemia; the clinical findings in splenic anemia are enlarged spleen and small liver,

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usually associated with fluid in the abdomen and progressive loss of red cells. Frequently called Banti's disease; a very similar condition is known as Glaucher's type of anemia. It is supposed to represent a type of anemia in which there is excessive destruction of red cells, either by toxins circulating or by over activity of the spleen; the literature is not very clear as to whether the hypertrophy of the spleen is primary and causative or the result of the destruction of the red cells.

The following clinical case was presented by Dr. Bannister, with demonstration of patient before the staff:

CASE VI.

Mrs. M. W., age 40, white. Nurse at county hospital for past 21 months; previously in private nursing.

Chief Complaint: One year ago in February had first acute red and itching swelling on dorsum of both hands; gradually increased in area until it reached each shoulder; no heat or severe inflammation, but blistered. Few months later appeared on instep of each foot and back of neck and base of neck anteriorly. Vagina affected at this time, from May to August. Off work in May, back in June though not well. Redness went away entirely in July, August and September. Later re-appeared on hands and about one week ago suddenly flared up in all old areas with acute swelling, pain, blistering, etc. Mouth, vagina and bowels all sore and swollen; diarrhea present.

In past history, diphtheria three years ago; curet-tage 12 years ago; four pregnancies; two children living and two dead from scarlet fever.

For past two years has had poor appetite and has eschewed meat, butter and milk almost entirely; never ate butter; lives largely on vegetables and fruit.

Aching pains are now severe; stools as frequent as 20 or 30 in 24 hours.

Physical Exam.: Nutrition good; temp. 101, pulse 88, resp. 22. Mucosa of gums, lips and cheek red, swollen and inflamed; eyes normal reaction to light. Base of neck at sides and nape posteriorly covered with dry red erythema.

Lungs O. K., without rales or signs of disease.

Heart regular and no murmurs or enlargement. B. P. 126-82.

Liver palpable two fingers below costal margin; no tumors or tenderness.

Vaginal mucosa scarlet red, swollen and painful; some purulent discharge.

Skin of dorsum of hands, forearms and upper arms swollen, scarlet red, hot to touch with purulent vesicles in spots; reaches into flexor surfaces of fore-arm and over elbow up to shoulders, bilaterally symmetrical. Tips of fingers and palms of hands free. Dorsal aspect of both ankles across instep affected.

Neurotic pains deep under surface of arms, not constant.

Diagnosis: Very marked case of acute pellagra.

Dr Carson demonstrated the method of administration of ethylene gas in work about the head, and outlined the care which is taken to prevent static sparking about the apparatus, patient and operating table.

The work in ethylene gas is advancing rapidly and it was very apparent that this hospital is abreast of the times in this respect.

Dr. McLoone commented on the high degree of satisfaction which this anesthesia gives in work about the nose and face. Several patients have come

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from distant points for operation solely because of the possibility of securing ethylene anesthesia.

Dr Vivian showed the slides illustrating his paper on epididymitis, which is to be read before the American Medical Association; criticism was asked for by him, and some was offered.

After adjourning the staff meeting, Dr. Brockway took charge for the Medical Society. The applications of Drs. Armbruster and Fattbert for membership were presented, with the approval of the Board of Censors, and they were voted into membership of the society.

Adjournment until Fall.

W. Warner Watkins, Sec'y.

DEACONESS' HOSPITAL (Phoenix) STAFF MEETING

The Medical and Surgical Staff of the Arizona Deaconess Hospital met May 23, 1925, at the hospital. Those present were: Drs. Thomas, Shelley, Watkins, McIntyre, Wilkinson, Drane, Couch, Bannister, E. H. Brown, Bailey, Garrison, Felch, Schwartz, Slaughter, Goodrich, O. H. Brown and Mrs. Sexton, Superintendent.

Dr. Goodrich, Chairman of the Staff, was in the chair.

The report of the Superintendent of the hospital was presented by the secretary. The number and classification of the cases admitted to the hospital during April were as follows: Medical, 21; surgical, 31; obstetrical, 15; new born, 18; gynecological, 18; urological, nine; eye, ear, nose and throat, 20; infections six; and tuberculosis, four. Twenty of the patients were children; 15 out-patients were treated; 14 x-ray examinations were made; there were 350 laboratory examinations. Of the cases discharged, 66 were cured; 30 were improved; one was relieved; seven were unimproved; three are to return for secondary operations; three were admitted for diagnosis only; 13 deaths occurred in the institution—two of them within 48 hours after admission. In regard to the diagnosis, the provisional and final agree for 113 and disagree in five.

In regard to the seven cases discharged unimproved, one came to the wrong hospital, one was left for a day for convenience, and the others were diagnosed; bronchial asthma, chronic suppurative otitis media, sarcoma of the breast; acute alcoholism, and retroperitoneal sarcoma.

The Program Committee presented the following digest of the record of deaths for April:

Case No. 3906 was a male, 34 years of age, with miliary tuberculosis; tuberculous epididymitis was operated upon in May, 1924; it did not heal. Pulmonary involvement came in September of 1924. Meningeal irritation was noticed March 29, 1925; admitted to the hospital March 30. Death was April 1. The records are excellent. The history and examination are both by the physician, Dr. Randolph. The progress notes are good also, but the physician did not sign page 1 of the records.

Case No. 3979 was a female, age 25, also with more or less general tuberculosis; was in a serious condition when admitted to the hospital. She lived about two weeks. White count, 20760, with 86% polys. Excellent history by Miss Kettlewell and excellent examination and progress notes by Dr. Randolph. The physicians were Holmes and Randolph. The first page of the records was not signed by the physicians.

Case No. 3930 was a male, 30 years of age, with pulmonary tuberculosis and tuberculosis of head of right femur. History is by Miss Kettlewell, which is standard for the hospital. The examination record is excellent by Dr. F. B. Sharpe. There are

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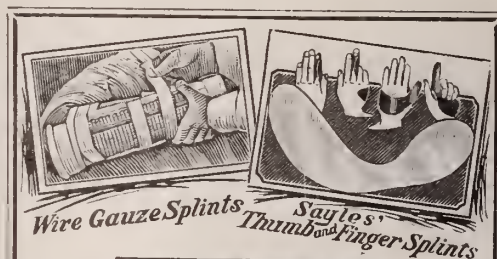
two progress notes by Dr. Sharpe. After about two weeks the patient was transferred to Dr. Sult. No progress notes by Dr. Sult, and he has not signed page 1 of the records.

Case No. 4057 was a male age 36, with pulmonary and laryngeal tuberculosis and syphilis. The records are good. The patient lived two weeks in the hospital. The narcotic orders are not signed by the physician, Dr. Sweet.

Case No. 3981 was a male, 72, with asthma. He lived nine days in hospital. History as usual by the historian; examination records not to be commended. Narcotic orders not signed by the physician, Dr. Couch. As asthma rarely causes death, it would be interesting to know if asthma really was the cause of the death.

Case No. 3964 was a female, age 12, brought to the hospital with a diagnosis of osteomyelitis. This was not substantiated by x-ray. History detailed a swelling of left leg with toes turning black and patient unconscious at intervals for several days. There is no record of any physical examination. Leucocytes were 19,400 with 82% polynuclears. No urine examination. Glucose and insulin were given. Patient died in about four hours. Diagnosis, not signed by physician, Dr. Vivian, was diabetes mellitus. There is nothing, so far as we can see, in the records on which to base a diagnosis. Diabetes is probably as good a guess as any.

Case No. 4025; male, age 60. History by Miss Kettlewell is fair. The examination was by Dr. Couch. This fails to note a very large heart later found by x-ray. It also fails to describe the appearance of the patient. The blood examination was: erythrocytes 920,000; leucocytes 1000; hemoglobin 20 percent; color index 1.1; poikilocytes microcytes and macrocytes were present. Nurses records are excellent. Diagnosis was pernicious anemia. Physician was Dr. Ross Martin.



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Case No. 3928 was a male, 80 years of age, with a diagnosis of intestinal influenza, high blood pressure and arteriosclerosis. Records are brief but adequate. Blood pressure was to 210. He lived five days in the hospital. The physician was Dr. Ellis.

Case No. 3905; female, age 30, had acute appendicitis and pulmonary tuberculosis. The history by the hospital historian is excellent and leaves no doubt as to the diagnosis. The examination by Dr. Coit Hughes is sufficient as far as the appendicitis with abscess is concerned. As regards the general condition of the patient, we have to guess. He should have recorded especially the condition of her heart and lungs. The patient's pulse and respiration were high on admission to the hospital and continued so until death on the ninth day. The pathologist's report confirmed the diagnosis.

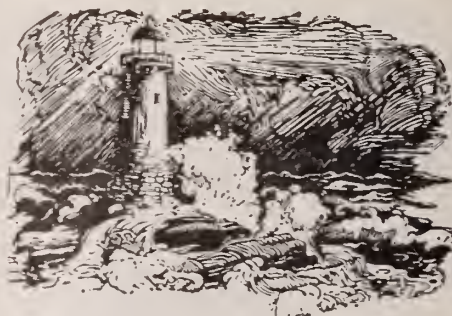
Case No. 3988 was a male age 76, with hypertrophied prostate. Excellent history; no examination record. Progress note on day of admission says evidence of approaching uremia. Blood sugar was .2. Supra-pubic cystotomy was done two days after admission, probably as a last resort. Death two days later. Page 1 is signed by Dr. E. P. Palmer and final diagnosis is given as hypertrophy of the prostate. There are several points in this record to criticize. In the first place there is no examination record. In a man with threatened uremia and .2 blood sugar, is it advisable to do even an operation of suprapubic cystotomy? So far as the records go there was no treatment for uremia outside digitalis, and proctoclysis which was unretained. The blood pressure was not recorded. As the records in the case stand it seems that there is just reason to question the treatment given the case. More complete records, however, might have made the treatment given appear justified.

Case No. 3994, male, age 40, with diagnosis of bowel obstruction, operated six and one-half hours after admission to hospital, and about 14 hours after onset of acute pain. The records are good; but they do not say whether or not patient refused earlier operation. The patient had had morphine evidently before being seen by the surgeon, Dr. C. B. Palmer, and the opiate probably made an early diagnosis difficult. This may explain the lapse of time between the onset of the trouble and the operation. Peritonitis had already developed. A loop of small bowel was strangulated in a slit in the mesentery, badly distending 10 feet of bowel, which was very dark in color. The odor was fecal. An autopsy confirmed the findings at operation.

Case No. 3876 was a male, age 50 with a diagnosis of carcinoma of tongue and brain. The history is good. The examination says there is a large mass at base of tongue, perforation of nasopharynx, and protruding eyeballs. Nothing else was recorded. This is by Dr. Burtch. This man came to the hospital to die, and evidently everything was done for him that could have been done.

Case No. 3929, female age 30, was diagnosed "acute suppuration in the abdominal cavity—probably a sequel of the former suppuration." The appendix was removed and drainage provided. The patient was not improved. The pathologist's report says specimen consists of small piece of appendix. The inference is that not all of the appendix was removed. The patient had been in the hospital a month before when an appendiceal abscess had been drained.

On the day of appendectomy, this patient's urine had a specific gravity of 1.036, albumin positive and many hyalin and granular casts. Is it good surgery to operate when the urine has the abnormal findings that this urine had?



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It seems that this patient had some condition which was not found. It is certain there was an acute nephritis. Was there a liver or a lung abscess? A more careful record of a general physical examination might help us to decide; the surgeon was Dr. Little.

The main part of the program was to have consisted of a discussion of head injuries. Dr. Tuthill was to have opened the discussion by presenting a resume of all the head injuries treated in the hospital. As Dr. Tuthill was not present a round table discussion of focal infection took place.

Dr. McIntyre reported a case of a woman with a pelvic infection in which an ice bag was used for five days and a slough of the abdominal wall under the ice bag followed. The gangrenous condition came several days after the ice bag was removed.

Dr. Bannister reported three cases in one family with a familial infection of tonsillitis, endocarditis and rheumats all at the same time.

Dr. Drane reported the case of a young man who works in an ice factory and who has had recurring attacks of tonsillitis and lately has had an acute rheumatism following an involvement of his tonsils.

Dr. Bannister said it his belief that rheumatism is much more prevalent in Phoenix than it was formerly.

Dr. Garrison said he has a series of ten cases of rheumatism under treatment at the present time.

Dr. Bailey reported the case of a man who has had sciatica following considerable tonsil trouble. The tonsils were removed recently. It is too early yet to know what the results will be.

Dr. Garrison said he is using large doses of sodium iodide and solicylate intravenously with good results in rheumatism.

Dr. Bannister said he has been using gonococcic vaccine intravenously in many cases of chronic arthritis. He has had good results in a number of cases. One patient with general osteoarthritis has been reated with radium chloride with a great deal of relief. In the use of gonococcic vaccine he uses two to three drops intravenously, every ten days to two weeks.

Dr. Brown reported a case in which a young woman had a great deal of pain, diagnosed as neuritis, for years—especially in winter. She had been advised repeatedly to have her tonsils out. Following an acute attack of tonsillitis six years ago, she promptly developed her old neuritis. She consented to having her tonsils removed. Recovery was prompt. The following winter, however, she developed an acute cold and neuritis soon followed, this time complicated with retinitis. Dr. Harry Hughes, oculist of St. Louis, despaired of saving her eyesight. Dr. Brown saw her on a trip to the east while she was at her worst. He could find no focal infection. Her tonsils had not returned. Cultures were made from the accessible mucous surfaces and a vaccine was prepared in the Pathological Laboratory, which was highly diluted and sent to her with instructions to begin with small doses and to gradually increase. She made a steady recovery, except for mild negative phases, from the time the vaccine was started.

Dr. Bailey reported a case which had attacks of blindness following attacks of tonsillitis and sinusitis. The tonsils had been removed. Lately following local treatment of the sinuses the colds and the eyes also recovered.

Dr. McIntyre said that the cervix was often a focus of infection which, if treated will cure the systemic disease.

Dr. Watkins reported a case that Dr. Vivian had referred to him for a bladder trouble. Attention was attracted during cystoscopy to the cervix. An examination showed an advanced carcinoma of the

pelvis. The bladder condition was secondary to the pelvic disease.

Dr. Thomas reported a case with high temperature and without discoverable cause. He gave 25 c. c. of a one percent solution of mercurochrome. She had a marked reaction. The temperature fell and an old arthritis which she had had for a long time was greatly improved.

Dr. Garrison reported a case of lead poisoning in which he gave sodium thiosulphate with uninterrupted recovery.

Dr. Watkins reported that they had found a case of relapsing fever in a man at Flagstaff.

Dr. Bailey reported a case in which there was evidence of nervous involvement. The sinuses and respiratory tract were carefully examined and found negative. The diagnosis has finally been arrived at as anteriorpoliomyelitis.

Dr. Bannister reported a case of a man who had an attack of influenza. He got better and made a trip to the northern part of the state. There he developed a chill, and hurriedly returned to Phoenix. There was evidence at once of a meningitis. A spinal puncture was done. The fluid had 7000 cells per cc. Pneumococci were present. Death soon followed.

Another case of a chronic ear infection of twenty years standing developed meningitis. Pneumococci were found in the spinal fluid. They were typed and proved to be Type I. The serum was given at intervals and the man is apparently getting well. He said he had reviewed the literature on meningitis from staphylococcus and streptococcus infection. Drainage of the cysterna magna by occipital trephine is recommended. Three or four cases so treated had recovered.

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Dr. Couch reported a case of anterior poliomyelitis. The first sign was numbness in the leg. Another case was similar, showing numbness of the legs and paralysis of hands and throat muscles with death.

The hour of ten having arrived the meeting stood adjourned.

Orville Harry Brown, Sec'y.

PERSONALS

The annual hegira of ST. LUKE'S HOME from Phoenix to Prescott occurred on May 28th, about forty patients going up. A new addition has been made to St. Luke's in the Mountains, at Prescott, new quarters to accommodate twelve women patients being built. This brings the capacity of this summer sanitarium of St. Luke's to sixty patients. DR. E. W. PHILLIPS, Director, will be away two months of the summer and DR. S. I. BLOOMHARDT, of Phoenix, will have charge during this period.

DR. CHAS. S. VIVIAN, of Phoenix, left the latter part of May for the east. He read two papers, one before the American Urological Association in St. Louis, and the other before the Urological Section of the American Medical Association, at Atlantic City. He will visit some eastern clinics before returning home.

DR. DUDLEY FOURNIER, of Montreal, recently became associated with the Southwestern Clinic in Phoenix. Dr. Fournier is a graduate of McGill and came to Phoenix after two years' hospital training in the Royal Victoria Hospital, at Montreal.

DR. GEO. W. STEPHENS, Superintendent of the State Hospital for the Insane, at Phoenix, attended the American Medical Association meeting in Atlantic City. DR. JOHNSON, the Assistant Superin-

tendent, being in charge during Dr. Stephens' absence.

DR. T. T. CLOHESSY, dermatologist, of Phoenix left recently for several months, postgraduate work in New York. He expects to return to Phoenix and resume the practice of this speciality, which he has found to present very attractive prospects in that locality.

DR. D. S. DUNCAN, formerly in charge of the hospital of the U. S. Indian School, at Phoenix, has resigned and entered into general practice at Peoria, Ariz., taking over the equipment and practice of Dr. B. F. Jeffers.

DR. ROY THOMAS, of Los Angeles, was elected Chairman of the Section of Medicine, at the recent annual meeting of the California State Medical Society, held at Yosemite.

DR. JAMES THOM, formerly at Jerome, has recently completed his postgraduate training in radiology at the University of California Hospital, San Francisco, and is now associated in practice of this specialty with Dr. Harold Zimmerman, Sacramento, Calif.

DR. E. W. HAWKINS, formerly of Sacaton, Ariz., a member of the Maricopa County Medical Society, has been transferred to the U. S. Hospital at Winnebago, Nebr. Dr. Hawkins was a very faithful member of that Society, driving in forty miles for nearly every meeting.

DR. CLIFFORD HOWLAND, formerly of New York City, has opened offices in the Heard building, in Phoenix, and announces that his practice will be limited exclusively to diseases of children. Dr. Howland is a graduate of Dartmouth, and practiced in East Orange, N. J. and New York City, before coming to Phoenix.

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VOLUME IX

JULY, 1925

No. 7

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CURRENT PROGRESS AND TREND OF PREVENTIVE MEDICINE

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The most significant recent contributions to the field of preventive medicine are summarized in the January issue of *The Nation's Health*, presumably in the order of their estimated perfectedness and importance as follows: Scarlet Fever, Prophylactic Vaccine for Tuberculosis. Goitre, Periodic Health Examinations.

SCARLET FEVER

The research work of Dochez and Blake and George F. and Gladys Dick have resulted in the identification of a type of hemolytic streptococcus as the specific cause of scarlet fever. It was further discovered that the angina rash, fever and other symptoms, in fact the toxemia of scarlet fever, were due to the circulation in the blood of a specific toxin produced by the action of this streptococcus on or in the tissues of the patient. In subsequent experiments made in an endeavor to produce an antitoxin, different methods of procedure were used. Dochez and Blake immunized the horse with repeated injections of living cultures of scarlet fever streptococcus. The Dicks on the other hand used repeated injections of the soluble toxin only. Each method resulted in the production of a scarlet fever antitoxin whose curative value has been demonstrated beyond the peradventure of doubt. Analogous to the action of diphtheria antitoxin, its value as a curative agent is in direct proportion to its early administration. There is the further analogy to diphtheria antitoxin in that a small dose (one-fourth of the curative dose) affords immediate immunity to scarlet fever when administered to susceptible contacts, and likewise, the immunity is of short duration, termin-

ating within two or three weeks. An additional use is made of the antitoxin as a means of differential diagnosis of scarlet fever from the exanthemata due to other causes; the intradermal injection of a minute quantity of the antitoxin in the scarlet fever exanthem neutralizes the toxin within the immediate area and causes a blanching of the rash in the infiltrated zone. In the rashes due to causes other than scarlet fever toxin, no such blanching occurs.

To summarize the results of the research and experiments of these scientists, there have been evolved, (a) a toxin and (b) an antitoxin.

The toxin is used, first, as an intradermal test, designated the Dick Test,—to determine susceptibility to scarlet fever; and second, subcutaneously, in the same manner as toxin-antitoxin for diphtheria, to establish active immunity against scarlet fever. The length of time this active immunity lasts is not definitely determined.

The antitoxin is useful, first, as a diagnostic agent to differentiate scarlet fever from similar exanthemata due to other causes; second, to confer immediate and temporary immunity; third, as a curative agent in active cases of scarlet fever.

The value of these has been established by ample experimentation and is sufficiently guaranteed to justify their extensive employment.

PROPHYLACTIC VACCINE FOR TUBERCULOSIS

An advance, seemingly of no less importance in preventive medicine, is the prophylactic vaccination for tuberculosis evolved by Calmette and Guérin, though its value

has not been so thoroughly tested clinically. Research by these scientists has extended over a period of thirteen years. Their aim was to produce an attenuated bacillus by means of artificial cultivation until it should lose its power to produce tubercles, but retain toxicity sufficient to produce tuberculin enough to confer immunity. The successful media selected was potato cooked in glycerinated bile. Transfers were made at 15 day intervals until 230 transfers were made. A vaccine made from the live cultures was tested on calves, guinea pigs and other animals over a period of four or five years. It was found that all vaccinated remained free from tuberculosis though continuously kept with heavily infected animals. They also resisted infection after inoculation with virulent tubercle bacilli, whether introduced intravenously, intraperitoneally, subcutaneously, or by ingestion.

Different methods of vaccination were used, repeated hypodermatic injections, and in very young animals by ingestion. The satisfactory results seemed to justify similar experiments on human beings. Infants to the number of 1500 have been vaccinated up to the present time by the ingestion method. Within the first 10 days of life, one centigram of vaccine is given on the third, fifth, and seventh days, when the intestinal mucosa is permeable to the vaccine. No digestive disturbance or other reaction follows the ingestion. From two to three months after vaccination, the Von Pirquet skin test is positive, and after this time becomes negative. None of those vaccinated subsequently acquired tuberculosis though many of them were intimately associated with parents who were active and open cases.

GOITER

The increasing recognition of simple goiter in many sections of the United States and the administration of iodine in the drinking water or in table salt, as a prophylactic, is listed as a recent advance in preventive medicine.

A casual survey of a few mountain

schools in Rio Arriba, Toas and Valencia counties has revealed an incidence of from 40 to 60% among the female school children and from 10 to 40% among the males. This would indicate the need of a careful goiter survey of the state and should claim the interest both of public health workers and practicing physicians.

PERIODIC HEALTH EXAMINATIONS

The movement for periodic health examinations of the supposedly healthy has reached that stage of progress that will necessitate more attention from practicing physicians than has been accorded it in the past, if they are to retain this phase of practice within the profession; otherwise, it will be exploited by quasi philanthropic organizations, cultists and quacks. The publicity that has been given the movement by the American Medical Association, National Health Council and other organizations has apparently sold the idea to the laymen, and there are many indications that demands will soon be made of the practicing physician that he furnish this service for a good percent of his clientele.

Several state medical societies, as well as some of the larger county societies have pointed the way, by pledging their membership to secure for themselves and families health examinations, and by devoting occasional meetings to discussions and demonstrations of the technic of making adequate and worthwhile examinations so as to meet the purposes of the plan. If slipshod methods in making examinations and carelessness on the part of physicians is shown so that the examinee feels he has not received any value for his expenditure, no good will be accomplished and the movement will fail or will subsequently be carried on by unethical and illegitimate agencies. Before this session of New Mexico Medical Society ends, I hope to see some action taken committing the society to the promotion of this movement and to devise such plans of procedure that will result in the greatest good to the public and the profession.

RENAL FUNCTION ESTIMATION IN GENERAL PRACTICE*

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As in anything else a prerequisite to success in the management of the nephritic is a clear conception of the object which we are trying to attain. Passing over the general objects of treatment, namely; prevention, alleviation of suffering and the im-

provement of impaired health, the outstanding object in nephritis is to recognize the situation at the earliest possible stage, for then is the greatest opportunity for the prevention of further damage: next, to institute proper treatment, and last, to make

*Read before the Thirty-Fourth Annual Meeting of the Arizona State Medical Association, held at Bisbee, Arizona, April 16 to 18, 1925

a rational prognosis, a matter of greatest importance to the patient. In order to do this the problem to be solved by the physician in any case of nephritis or patient with hypertension is to determine the presence and degree of functional impairment of the kidney. Without this knowledge treatment is uncertain and the first questions of the patient, "What can be done for me?" and "What is the outlook?" cannot be answered with any degree of accuracy. It has not been possible to foretell with assurance the pathological state of the kidney by any functional tests and it is equally impossible to gauge its function by simple urine examination. But it is still possible to gain by other means very important information as to how much the kidney is damaged. This is not a matter for any sort of specialist but for the general practitioner. Into his hands these patients first come and there remain. The devices at his disposal of necessity cannot be and actually are not of such complex and recondite nature as to be impracticable.

Many methods for the study of renal function have been proposed and several have survived. Of these there are three whose simplicity of performance, practicability and general value have made them indispensable in the proper management of the nephritic. Two of these, the test of phenolsulphonephthalein excretion introduced by Rowntree and Geraghty and the two-hour concentration test elaborated by Mosenthal, require neither expensive apparatus, time nor training on the part of the physician. The third, estimation of nitrogen retention in the blood, is readily carried out in any fairly well equipped laboratory. None of these tests replace a carefully taken history, physical examination, the usual chemical and microscopical examination of the urine and the exercise of clinical judgment especially in the consideration of extrarenal factors in each case. but they do enormously extend our knowledge so that treatment and prognosis are on a far surer footing than when conclusions are drawn solely from examination and the often meagre findings of simple urine tests. By their use the error in assuming a harmless postural albuminuria to indicate renal damage is avoided. Or a supposed diabetes insipidus may be shown to be actually a nephritic. Likewise the misleading negative urine findings of a chronic interstitial nephritis can be recognized. In experimental uranium nephritis the quantity of albumin in the urine is no indicator of the extent of kidney damage and we doubtless have a similar situation

in man. Albuminuria may decrease when phthalein output is falling and the blood showing increasing retention of nitrogen.

THE PHTHALEIN TEST

In a word the phthalein test consists in the introduction into the body of a dye and the measurement of its excretion in the urine in a given time. Under most circumstances and especially in office practice, intravenous administration is the most convenient since the time thus required for the test is only one hour. Intramuscular injection is equally satisfactory except that the time of the test is doubled. Any difficulties in emptying the bladder due to an obstructing prostate or nervousness may be obviated by the use of a catheter. The dye is obtainable in ampoule solution and a simple and inexpensive apparatus, the Dunning colorimeter, is used in making the reading. The few words of direction for the test are furnished with both the dye and colorimeter and do not need repetition here. So simple is the whole procedure that the possibility of technical error is negligible.

In health the elimination of phthalein is prompt and rapid. Within two hours practically the whole quantity of the dye has appeared in the urine, irrespective of the amount secreted. A damaged kidney excretes a certain amount during the observation period, but the blood concentration remaining high, it still continues to excrete the dye perhaps for hours afterwards. We are not concerned with the time of the total excretion but only with the amount excreted during the first hour after intravenous or in two hours after intramuscular injection. Sixty-five to eighty per cent of the phthalein is excreted in the first hour after intravenous use, fifty to eighty per cent in two hours after administration intramuscularly. In nephritis the test is an indicator of the extent of kidney damage. Excretion of less than twenty per cent is of serious omen. Persistently low readings under ten per cent, usually presage a fatal outcome within months. An occasional patient is seen with few or no symptoms and no abnormal urine findings except a low specific gravity in the twenty-four hour urine but with a surprisingly low phthalein output. Here the outcome may be predicted. In any patient with no excretion or only a trace the prognosis is extremely grave regardless of the absence or triviality of symptoms. The diagnosis of uremia with slight symptoms is not an easy matter and here the helpfulness of the test is apparent. A problem in diagnosis is presented by the common cases of heart failure

with edema and low urine excretion with albumin and casts. The question for decision is how much is the kidney a factor in the situation. The phthalen test is here of little value at first since it shows a low excretion in the passive congestion of circulatory failure as well as in nephritis. But as the patient improves, edema diminishes and the phthalein excretion rises the prognosis becomes more favorable. A continued low excretion after clinical improvement indicates permanent renal damage.

Changes in phthalein output in cases of high blood pressure depend upon damage to the kidney. In simple hypertension a normal phthalein excretion may be found with a blood pressure continuously over 200. The test here is of decided value in prognosis. On the other hand a normal blood pressure may exist with a phthalein excretion of zero. Instances have been encountered in which renal function was at a low level and phthalein excretion normal but they are rare and the other tests preclude error.

NITROGEN RETENTION

When kidney function is defective various substances present in the blood are increased in amount due to the inability of the kidneys to eliminate them. We are interested particularly in the retention of the non-protein or non-coagulable nitrogenous matter, consisting chiefly of urea, uric acid, creatin, creatinin and ammonia. Usually these substances are increased proportionately but may vary somewhat with the diet. Various observers have advocated the study of one or the other, but in most general use is the estimation of the blood urea nitrogen which forms about forty to fifty per cent of the total non-protein nitrogen. The test requires certain laboratory facilities and is hardly practicable for general use by physicians but it is a simple matter to withdraw in the morning before breakfast about fifteen cubic centimeters of blood in a test tube containing a pinch of potassium oxalate and to deliver it to laboratory.

In health the blood urea nitrogen amounts to twelve to fourteen milligrams per hundred cubic centimeters of blood and never exceeds twenty. Cases of uremia have been described in which the quantity rose to over three hundred milligrams. A high reading simply means defective renal function and usually nephritis. In chronic passive congestion the figures rarely exceed fifty milligrams. The greatest value of the test is in the detection of true uremia in which the figures are uniformly high. In only two other conditions, intestinal obstruction and severe anemia due to hemo-

lysis, are such high readings encountered. In prognosis blood urea nitrogen estimation is of especial value. Very high values, one hundred to two hundred milligrams, indicate a fatal outcome within a short time except in occasional cases of acute nephritis. When blood urea steadily falls the outlook is correspondingly more encouraging. In treatment the test is of very solid value. Patients with high figures require protein restriction, by which is meant an intake of twenty-five grams or less per day, though in cases frankly uremic no considerable reduction can be expected by this treatment. In the absence of nitrogen retention no marked restriction is called for. Patients with nitrogen retention should not be subjected to fluid restriction. Regardless of the presence of edema they must have an adequate fluid intake since only by good urine excretion can nitrogen be eliminated and the serious dangers of its further accumulation avoided. One thing, however, must be borne in mind when radical increase is made in the fluid intake of a nephritic. Increased fluids may fatigue the kidney by over-stimulation and instead of diuresis the opposite, an oliguria, may occur. Hence urine excretion must be watched in these patients when fluids are increased.

THE TWO-HOUR CONCENTRATION TEST

During twenty-four hours the normal kidney excretes urine varying widely from time to time in its content of solids. That is to say it is flexible in its function, excreting at one time a concentrated, at another a dilute urine. At an early stage of functional damage, often before phthalein excretion is reduced or there is accumulation of nitrogenous bodies in the blood, this normal flexibility is lost, the kidney becomes unable to concentrate, the specific gravity of the urine is low and varies but a few points. If urine specimens are collected at intervals of about two hours throughout the day and the night urine as one specimen under the conditions of the test the normal findings are as follows: The maximal specific gravity is 1020 or more. There is a variation of nine points or more in the gravity of the different specimens. The night urine does not exceed four hundred cubic centimeters. With failure of ability to concentrate, that is, renal insufficiency, the specific gravity is low and varies but little in the different specimens, and the night urine is excessive, even approaching the quantity excreted during the day. When there is an excessive night urine an attempt should be made to reduce it by restriction of salt and protein since

the strain of high continued excretion is an added factor in kidney damage.

The test of the ability of the kidney to concentrate is simplicity itself in execution and is carried out without interruption of the patient's ordinary activities. The patient is furnished with seven two-ounce bottles and the following prepared instruction sheet:

INSTRUCTION FOR THE TEST

Void urine as directed below and measure the quantity voided each time. A portion of each specimen voided is to be put in a bottle and labeled with the hour and quantity. Do not alter your ordinary diet in any way but note the approximate amounts of food and fluid taken at each meal, for example, "Breakfast, one orange, two tablespoonfuls of oatmeal with four ounces of cream, one egg, a cup of coffee." Use the reverse of this sheet for these notes. Save specimens as follows:

8 a. m. Void and discard urine.

8 a. m. Breakfast.

10 a. m. Void, save and label urine as above directed.

12 m. Void, save and label urine as above directed.

1 p. m. Lunch.

2 p. m. Void, save and label urine as before.

4 p. m. Void, save and label urine as before.

7 p. m. Dinner.

10 p. m. Void, save and label urine as before.

8 a. m. Void, save and label urine as before, adding all urine that may have been passed during the night between 10 p. m. and 8 a. m. Send all bottles to the office.

Do not take either food or fluid between meals or after dinner until the test is completed. Note any deviations from these instructions on the back of this sheet.

The results of the test in the following case will serve to illustrate the findings in a typical chronic nephritis of the variety usually called interstitial. This man had suffered from severe uremic manifestations including general convulsions three weeks before. The urine contained no albumin and only very rare hyalin casts.

Hour	Quantity	Sp. G.
10 a. m.	360 cc	1011
12 m	255 cc	1010
2 u. m.	240 cc	1010
4 p. m.	450 cc	1009
7 p. m.	330 cc	1011
10 p. m.	360 cc	1011
8 a. m.	1170 cc	1011

Total day urine 1995 cc. Total night 1170 cc.

These are the characteristic findings of a renal insufficiency, a low and fixed specific gravity and an excessive night urine.

The conditions in which there is a high and fixed specific gravity are circulatory stasis with failing heart and acute and chronic diffuse nephritis, but in both of these there is a low urine excretion with

albumin and casts. High gravity fixation is sometimes seen in normal individuals whose fluid intake is inadequate or who are losing large quantities of fluid by sweating. Low gravity fixation is met with in certain other conditions the most important of which are severe anemia, diabetes insipidus and during the elimination of edema. Here the evident factors in the case, the phthalein test and blood urea determination make the diagnosis clear.

The importance of kidney function estimation in cases of high blood pressure has been mentioned. The following case, which could be duplicated again and again, is reported to illustrate what may be learned from the three tests in such a patient.

CASE REPORT

The patient was a woman of thirty-three who complained of dizziness, nervousness, palpitation and occasional sharp pains in the region of her heart. Her systolic blood pressure had been found to be 220 mm. one and one-half years previously. She was very obese, weighing thirty-seven pounds over the average for her height and age. Her blood pressure was 200/120. A single urine specimen showed no abnormalities. There were no changes in the eye-grounds or other findings of importance. The symptoms and high blood pressure at once aroused the strong suspicion of chronic nephritis in spite of the negative urine findings but this was not confirmed by investigation of renal function. The phthalein excretion was 85% in one hour after intravenous use. Blood urea nitrogen was 11.2 mg. per hundred cubic centimeters. The concentration test showed a gravity variation from 1019 to 1025, somewhat fixed but high. The day urine was 555 cc, the night 345 cc. The fluid intake was evidently insufficient. Certainly there was no significant renal damage in the case and we were dealing with a simple hypertension, a fact materially influencing prognosis.

CONCLUSION.

In conclusion, I wish to bear emphasis on one or two facts in consideration of these tests of renal function. One test sometimes gives information which another does not but there is no single test employed to the exclusion of all others which is not subject to certain limitations; and, what is equally important, no test or tests employed but a single time can be an unqualified basis for prognosis and treatment. The object of them all is to determine the presence of a renal lesion, its course, its prognosis and its management. Used intelligently and with due regard to the other aspects of the case they are of such great value and importance that they deserve far more general use.

A METHOD TO MINIMIZE THE NEGATIVE PHASE IN VACCINE THERAPY*

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The method I wish to report has been used by me for nearly three years with most gratifying results. I realize full well the difficulty in attempting to substantiate a therapeutic measure by a citation of clinical results; consequently I shall present my subject mainly from a theoretical standpoint. I shall also discuss briefly certain other points in vaccine therapy.

The extent to which vaccine therapy is used by physicians everywhere is sufficient testimony to its value. The growing number of good patients, however, who object to the use of vaccine is testimony that the reaction to the bacterial vaccine is not always favorable. This means that we doctors are using vaccines without due judgment.

As to the theory of immunity production or immunity failure, I shall be content with saying that bacteria produce ferments which destroy the tissues of their hosts and the hosts produce ferments and antibodies which destroy bacteria and their toxins. The antibodies of the animal are more or less specific for the bacteria against which they are produced. It is probable also that the ferments of the bacteria have specificity in some degree for animal tissue. The autogenous vaccine for many cases has been long considered essential.

A localized infection in the body produces stagnation of the blood and lymph circulation of the infected area. In spite of the stagnant circulation, however, the bacterial toxins, or even the bacteria themselves, usually reach the blood stream. The absorbed agents throw a burden upon the immunity forces outside the infected area stimulating the immunity forces when the amount of the toxic substances is not too great. The stagnation of the circulation of the infected area, however, prevents the full use of the general immunity. Free drainage of the infected area to the outside by incision or by means of hypertonic saline solutions, light baths, hot packs, Bier's hyperemia, cupping, etc., removes bacterial ferments and tends to bring in the immunity forces of the blood.

Dead bacteria and their toxins introduced into the blood stream by means of the needle are added to those which have been absorbed from the infected area, and may

serve to further stimulate the development of immunity chemicals of the general system; but the increased amount of bacteria and toxin in the blood stream is carried to the infected area and may further reduce the immunity of this area. Then too the possibility exists that the blood has already had too much of the bacteria and their toxins.

When dead bacteria are introduced hypodermically the tissues at the site of injection are stimulated to produce antibacterial ferments. The new antibodies together with the undestroyed bacteria and toxins are carried with the lymph and introduced into the blood stream.

Krause in experiments on guinea pigs found that tubercle bacilli, when injected subcutaneously, pass centralward to the nearest node where they are held for a time and thence to the next, and the next, until they are discharged into the blood. Dead bacteria must be taken up from the subcutaneous tissue and passed on by the lymph to the nodes and hence to the blood stream just as are live tubercle bacilli.

When dead bacteria are introduced subcutaneously in the arm they have but a comparatively short distance to go until they are passed into the blood stream. With the bacteria introduced into the leg the distance for them to travel to reach the blood stream is a much longer one than that of the arm.

It is common clinical knowledge that a hypodermic injection of a drug, morphin for example, does not have as pronounced an effect given in the leg as it has when given in the arm. This is because much of the drug is absorbed from the tissues by the lymphatics and hence gets to the blood secondarily. Morphin is a dialyzable substance. Vaccines are not dialyzable.

It seems reasonable, too, that the lymph stream of the legs must be relatively slower than that of the arms, except during the time that the individual is recumbent.

What happens to bacteria, dead or alive, after they reach the blood stream? Krause has shown most conclusively that living bacteria from whatever site of inoculation pass with the lymph into the blood stream and thence through the lungs where most of them are filtered out by the pulmonary

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parenchyma. From the parenchyma of the lungs the bacteria pass into the pulmonary lymphatics. The bacteria may stick in the lymphatics, or they may pass on to the hilum lymph nodes, where they may stay; but if the bacteria pass the hilum nodes they may again reach the blood stream to repeat the cycle just made. It would seem reasonable to assume that dead bacteria are transported through the lymph and blood streams just as are the living bacteria, with the exception that dead bacteria have a greater chance of being destroyed along the route. If, however, the pulmonary tissues have had their immunologic responses taxed to the limit, the antitissue ferments of the bacteria injected for therapeutic reasons may simply assist the infecting organisms of the lungs in their tissue destruction.

On this course of reasoning then, we would have to say that where pulmonary lesions exist bacterial vaccines should be given with a great deal of caution. I have seen cases of pulmonary phthisis who attributed the blazing up of the activity in their lungs to antityphoid inoculations. Kolmer calls attention to the harm that may result to the tuberculous from antityphoid inoculations. He pertinently adds, however, that even more harm may result from an acute tonsillitis, rhinitis, or other acute infection.

Based upon this course of reasoning the conclusion is evident that the lymphatic and pulmonary structures must have much to do in the production of bacteriotropic substances.

In patients where it is desirable to develop antibodies suddenly and in large amounts as in the onset of pneumonia or typhoid large doses of vaccine should be given and in a place where they will be readily distributed over the body; but in established disease it would seem advisable to train tissues which have had to bear comparatively little of the brunt of the fight against the disease.

I reason that minimum doses of vaccine introduced into the subcutaneous tissue and followed repeatedly at two to four day intervals with successively and slightly larger doses would train those tissues reached by the vaccine to manufacture antibodies in greater and greater quantities. To avoid adding to the toxin and bacteria in the blood and about the areas of infection I have been injecting the vaccines just above the ankle. I administer small doses so that the bacteria may be as nearly destroyed as possible before they reach the blood stream. To have more than one area in training for

the production of antibodies I use all four lateral surfaces of the legs. To bring up the dosage to what is ordinarily considered a correct dose I give injections daily. Each lateral surface gets an injection every four days.

Calmette has shown that a live avirulent culture of tubercle bacilli injected into an animal positively protects against tuberculosis. Pasteur and others found the same with other diseases, against which suspensions of dead bacteria have not been able to produce a successful immunity. While there may be a difference between the chemicals of dead and living bacteria there is another decided difference, namely; living avirulent cultures injected into the tissues continue to live and produce steady stimulation of the immunity forces of the body. This would seem to be an argument in favor of frequent injections of vaccine in small doses.

Our autogenous vaccines as they come from the laboratory contain ordinarily 5000 million per cubic centimetre. I take a second vial containing about 85m of normal saline with the preservative and add to it one minim of the vaccine. I give one minim of the diluted vaccine in each lateral surface of the lower leg on successive days, unless too much of a local reaction follows the first inoculation, in which event a smaller dose is given in the next three injections. In the event the reaction is slight, one minim or perhaps only half a minim is added from the full strength vaccine to the dilution. One minim or perhaps only half a minim is given as before. As the successive dilutions and injections are made the strength of the diluted vaccines increase a trifle more than 50% for each four injections. This is because four minims are withdrawn from the second vial for each minim added. By the time the contents of the second bottle are exhausted the vaccine can be used in full strength and the tissues will usually exhibit no greater reactions than occurred from the first dose of the diluted vaccine. The tissues are then highly trained in the production of antibodies.

I make it a point never to use a greater quantity than one minim for an injection until it becomes necessary to get the increase in dosage. The theory of using the small quantity is that it produces little or no increased pressure about the capillaries and hence little chance of any direct absorption of toxin into the blood.

Obviously this method of treatment is mainly applicable to patients with chronic disease unless sore legs are not a worry.

I have discussed this problem from a theoretical standpoint because the citation of therapeutic successes is not usually overly convincing. On the practical side, suffice it for me to say that in cases of asthma, chronic phthisis, and bronchiectasis I have obtained apparently good results. To say that other methods would not have been equally successful is of course impossible. Then too the claims of one man do not prove a case. I do believe, however, that inoculations in the legs have given me results that I could not have gotten in any other route.

I shall cite one case. Before I began using this method I was giving one of my patients an autogenous vaccine in high dilutions in his arms. The new plan suggested itself to me and I began giving him his vaccine in his legs. This young man was sensitive to even small doses of the vaccine so that he had headache and malaise from it. Following the injections in the arms his headache and malaise came on within one to two hours after the injection and lasted for ten to twelve hours. After the same size doses in his legs his symptoms of toxemia came on ten to twelve hours after the injection and lasted one to two hours only and were less marked.

In asthmatics who are sensitive to a bacterial protein it can be given in the leg, it has seemed to me, with less danger of stirring up the asthma than when given in the arm.

Vaccines for therapeutic purposes, I am convinced, are often given in too great dosage and at a stage of the disease that produces only untoward effects. I caution against the thoughtless use of bacterial vaccine especially in large dosage and in the acute stage of a disease. In the suspensions of killed bacteria we have therapeutic agents of great value if they be but used with the keenest of judgement. The danger is that careless use of them puts a fear of them into the patient so that the proper use of them, when they may be the one agent that would reverse a losing fight, would be prevented by strong prejudices on the part of the sick man.

The two conditions in which the bacterial vaccine should be used are in the chronically sick man and for prophylaxis.

The common "cold" is now being attacked as one of the greatest causes of loss of time and predisposer to more serious illness. If we could but train the lay public to report each fall for prophylactic inoculations of "cold" vaccine there is little question but that the number and severity of colds would be greatly lessened.

In this connection I give my method of preparing a "cold" vaccine. During the fall and early winter I have autogenous vaccines made for the persons, especially for visitors from other states, who report to me with acute "colds". I take from each one of these vaccines a part and make a mixture which I term my "cold" vaccine. It seems that in this way I get a vaccine of those organisms most likely to attack our local population during the ensuing months.

Fleming and Clemenger in Nelson's Medicine give the medium effective doses of vaccines as follows: Acne bacilli, 100-1000 million; staphylococci, 250-1000 million; streptococci, 5-100 million; pneumococci, 20-200 million; catarrhalis, 20-100 million; influenza bacilli, 50-500 million; colon bacilli, 20-250 million; gonococci, 25-500 million. The time between such doses should be usually five to seven days. If injections are given oftener they should be proportionally smaller.

Hitchens in the last edition of Sajous' Cyclopaedia of Medicine says it has become the custom in many laboratories to make the autogenous vaccine so as to contain 50 million bacteria per c. c., with the exception of staphylococci which are made to contain 300 million per c. c.. The initial dose of these vaccines he says, is generally one fourth to one half of a c. c., 12½ to 25 million of most bacteria, and 75 to 150 million of staphylococci.

In England the tendency is to use smaller doses than are used in America.

Kolmer, in his book on Infection, Immunity and Biologic Therapy, gives the ordinary doses of the common bacteria as follows; staphylococcus aureus 100 million to one billion, staphylococcus albus and citreus 200 million, gonococcus 25 to 200 million; typhoid bacillus 250 to one million.

I have cited authorities on the dosage of vaccine to counteract the tendency we are apt to display, that, if a little dose does a little good, more will do more good. This statement of course does not apply to vaccines any more than it applies to strychnine or digitalis, or other drugs. The dosage of medicine in any particular individual is a question of judgement first, last and all the time.

My contention is that the immunity forces are stimulated best by beginning with small amounts and making the increase fairly steadily and regularly. The athlete knows full well the importance of gradual systematic training for his muscles. The immunologist should recognize the same law in his field.

Bacterial vaccines for immunizing purposes should be given in large doses and they should reach the blood stream quickly; or better yet they should be given as nearly as possible to the site where they usually gain entrance to the body. It seems that the giving of huge doses of typhoid vaccine by the alimentary canal may prove to afford the best protection against typhoid. The "cold" bacteria might be sprayed into the nose and throat as an experiment to see if this method would produce a better immunity than usually results from the hypodermic administration.

I am of the opinion that the pollen antigens should be administered in the winter seasons by spray in the nose, in high dilution at first and with a careful steady increase of concentrations. Theoretically at least this would give the mucous surfaces of the hay fever subject a most desirable training for the pollen seasons.

SUMMARY

Bacterial vaccines are reliable therapeutic agents.

They are not to be administered without careful judgment; otherwise they produce

a prejudice in the mind of the patient even if they do no other harm.

Given in small doses in the leg just above the ankle is the safest way to guard against the untoward effects of the negative phase; this method is the burden of my paper.

In acute illness as pneumonia and typhoid, bacterial vaccines given early in large doses may stimulate immunity quicker then it would otherwise be stimulated.

Prophylactic inoculations of "cold" vaccines are to be encouraged for the lay public.

A "cold" vaccine consisting of mixtures of the autogenous vaccines of a goodly number of the first serious "colds" of the season would seem to be an efficient one.

The initial therapeutic dose of the usual bacterial vaccine is given by the authorities as ranging from one half million to a billion; the preponderance of authority is for the smaller doses.

Vaccines for prophylactic purposes should be given in larger doses and in a place where they find ready entrance to the blood stream; there is a good reason to think that they should be administered at or near the site where the respective bacteria ordinarily enter the body.

THE KNEE JOINT*

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The knee joint permits of the movements of flexion and extension, and in certain positions a slight inward and outward rotation of the leg upon the thigh. The bones entering into its formation are the condyles of the femur above, the head of the tibia below and the patella in front.

These structures are stabilized by being bound together externally by the capsular ligament, the anterior or patellar ligament, the posterior ligament, and the internal and external lateral ligaments. These ligaments also form the wall of the joint cavity, and are so well placed and of such strength as to convert what at first appears to be the least secure into one of the strongest joints of the body.

The knee joint cavity is lined with synovial membrane, and is anatomically divided into the anterior and posterior chambers. This cavity, besides being extensive within itself, has direct communication with several of the numerous bursae that are located in this region. In the interior of the joint cavity are found the anterior and posterior

crucial ligaments, the transverse ligaments, the coronary ligament, the two semilunar fibrocartilages, and the infrapatellar fat pad.

The semilunars are two crescentic plates of cartilage which adapt to a certain extent the surface of the tibial head to the shape of the femoral condyles. They are attached to the tibia by means of the coronary ligament and with each other on their anterior convex margin by the transverse ligament. Their tibial attachment is not rigid, and permits of a slight amount of movement which contributes to the variations in flexion, extension, and rotation of the leg.

The stability of the external cartilage is greater than that of the internal. This is due to its heavier construction, and to the union of its inner portion with and between the anterior and posterior crucial ligaments, while the instability of the internal cartilage is further increased by its union with the internal lateral ligament.

This difference in construction and attachments accounts for the greater fre-

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quency with which the internal cartilage is injured. In the majority of cases the injury of this cartilage is directly due to its lateral ligament attachment. The force producing an injury to the internal lateral ligament severe enough to cause a moderate strain or tear is usually transmitted to the cartilage with sufficient pull to loosen it partially or completely from the tibia.

A sudden wrench or inward rotation of the femur upon the tibia, when the leg is held firmly in a flexed position, is responsible for many dislocations of the internal semilunar; also, direct violence to the outer side of the knee, which forces the knee inward, separating the mesial portion of the joint surfaces and stretching or tearing the internal lateral ligament, produces the same result.

Forty-three per cent of our chronic cartilage cases gave a history of having received direct violence to the outer portion of the knee joint, while twenty-seven per cent dated their trouble from injuries received while working in a squatting position, or when running and jumping. Injured cartilages had only been suspected in those cases where there was an immediate locking of the knee. The primary treatment was that usually applied to sprained conditions, the early use of the limb being encouraged.

In sixty-two per cent of all cases the pain and discomfort suffered when attempts were made to use the limbs were more marked at the end of ten days to two weeks than at any time previous. This late increase in the amount of pain and discomfort is sufficient within itself to warrant the additional diagnosis of injury to the semilunar cartilages. Whitman explains this late symptom of increased pain as being due to direct pressure upon the swollen and sensitive newly formed blood vessels which penetrate the cartilage during the process of repair.

The firm union between the internal lateral ligament and the internal semilunar cartilage, and the non-stable union between the cartilage and the head of the tibia, makes it practically an impossibility to do much damage to the ligament without loosening the cartilage. Therefore the treatment in these cases should be that which would favor the reunion of the cartilage with the tibia.

The locking of the knee in flexion, or other internal interference of knee joint motion can, as a rule, be attributed to the slipping and catching of one of the semilunar cartilages; in other instances it may be due to a loose or semi-loose body becoming wedged between the joint surfaces, a

fracturing of the spine of the tibia, or a tearing off of the crucial ligaments.

The reduction of a displaced semilunar cartilage that is causing a locking or interference of joint motion can usually be readily accomplished by the Whitelock manipulative method. This consists of placing the patient upon his back with the leg flexed upon the thigh and the thigh upon the body; the limb is adducted until the knee reaches the mid body line. This position gives the greatest relaxation of the tendons and ligaments. The ankle is grasped with one hand and the knee with the other; if the displacement is that of the internal cartilage, the tibia is then abducted in order to increase as far as possible the width of the space between the internal femoral condyle and the tibia; the leg is then gently worked back and forwards, with a moderate rotary motion, until the cartilage slips back into position. The treatment, after reduction has been accomplished, should be the fixation of the extended limb by plaster for three weeks, then for a like period by adhesive strapping. Treatments of heat and massage are beneficial in hastening the absorption of inflammatory products.

In cartilages that are old offenders, the fixation of the knee for more than a few days is not indicated. Their treatment should be along the preventive line, as the wearing of a knee brace, or other appliance that might help to prevent the recurrence of the dislocation.

Dislocated cartilages which cannot be reduced, as well as old loose and diseased cartilages that continue to give serious trouble, should always be removed.

In cases where the diagnosis is not clear to the surgeon, a thorough examination of the joint cavity should be made before attempting to carry out any operative measures.

This examination can best be made by the aid of an endoscope, the endoscope being introduced into the cavity through a stab incision. This incision through the soft tissues covering the anterior part of joint cavity is made to the left or right of the patella, as the condition indicates; by this method every portion of the joint cavity is brought into plain view, and a correct diagnosis can easily be made, and if the removal of the cartilage is indicated, the operation can then be carried on to completion through the same incision, after it has been suitably enlarged.

There are no objections to irrigating a joint cavity, following recent injuries, with a saline solution, where the field of vision is obscured by blood.

Loose or foreign bodies of various numbers, shapes, and sizes may be found within the knee joint; they may be entirely free within the cavity, or may be attached by pedicle. Their source of nourishment is from the synovial villi, which become hypertrophied and undergo fibrous or cartilaginous changes. These bodies may remain in the joint cavity for an indefinite time without causing symptoms; or the symptoms may range from a mild synovitis with slight interference with joint motion to abrupt locking of the knee with severe pain and marked synovial effusion.

Treatment indicated in these conditions is that of the removal of the offending objects. Various operative methods have been employed from the transfixing with a needle, where the body can be located through the skin, to the complete exposure of the joint cavity by division of the patella as recommended by Jones of Liverpool.

I have employed practically every method recommended for the removal of loose bodies from the knee joint, but since 1919 I have simplified this class of work by adopting the use of the endoscope in all cases, except those in which the body could be located and transfixed through the skin.

The first case in which I made use of the endoscope was that of a soldier who received an injury to his knee while doing duty in the Hawaiian Islands, and was later transferred to the Letterman General Hospital, San Francisco under the diagnosis of dislocated external semilunar cartilage. Examination twenty-three days after injury showed that extension of the leg beyond 150 degrees produced marked pain; a small incision was made into joint cavity just external to the patellar ligament; and endoscope was introduced into the joint, and it was readily ascertained that a foreign body and not the cartilage was causing the trouble; a right angle dental hook was inserted into the cavity, and under the direct guidance of the endoscope the body was harpooned and brought out through the incision; full extension of the knee was immediately obtained. Of the seventeen cases operated on by this method, I have never found but one in which the pedicle was strong enough to interfere with its removal: in this instance the body was severed from the pedicle by means of a small calibre nasal snare.

Synovitis is of common occurrence as it follows practically every degree of injury received in the knee joint region. The inflammatory reaction of the synovial membrane at times is out of all proportion to the degree of injury received, while, at

other times, severe injuries to the surrounding soft parts will produce but a mild synovial disturbance.

The symptoms of an acute synovitis, as pain, swelling, grating, and distention of joint cavity with synovial fluid, usually quickly subsides under the treatment of rest and strapping of joint. In other instances the symptoms increase in severity, or indefinitely remain the same, under the additional treatment of heat, massage and repeated aspirations.

After it has become apparent that conservative methods are not going to produce a cure, and the condition is severe enough to warrant, the joint cavity should be examined and after the exciting cause has been found, it should be removed, whether it be a loosened cartilage, a section of synovial fringe, or a tag of fat that is being continually traumatized by impingement between the joint surfaces.

Due consideration should be given to points of focal infection, as cases often resisting all other forms of treatment have cleared up after the removal of infected teeth or other foci; although, in these cases, I have never been able to demonstrate the presence of pathogenic organisms, either by culture of the synovial fluid or the direct microscopical examination of tissue removed.

The problems presented in the treatment of chronic synovitis are much greater than those of the acute type. Cases that no doubt would have cleared up by the early removal of loosened cartilages or impinged tissue, show no such improvement after performance of the delayed operation, as the entire synovial membrane has become diseased and greatly thickened, similar changes having also taken place in the infrapatellar fat pad. Other joint changes, as the destruction of the articular cartilages and the crucial ligaments and the formation of osteophytes or lipping of the joint edges may take place.

During the past seven years there has been a revival of the radical operation for the removal of the synovial membrane and other pathology found in these joints. Synovectomy was first practiced by the Germans some forty years ago in the treatment of tuberculosis of the knee with apparently good results. Recently, series of synovectomy cases have been published by Burghard, Sweet, Speed, Kolbig, Ellis Jones, and others. Among these cases were those of chronic monarticular arthritis, chronic polyarthritis, including the deformans type, infectious arthritis following penetrating wounds, cases of osteochondromatosis, and tuberculosis.

The results of these operations, as to obtaining useful joints, have been fair, and the conclusions arrived at are that the quiescent monarticular types offer the best results, as the prognosis is very good even after marked joint changes have taken place. In cases of osteochondromatosis the prognosis is good. Synovectomy in cases of acute pyogenic arthritis should not be undertaken, and in tuberculosis the prognosis is good for a useful joint only when the disease is confined to the synovial membrane.

My personal experience has been limited to four cases, in all of which the final results were satisfactory. In two of these the primary cause, no doubt, was due to injured semilunar cartilages; at time of operation a marked disintegration of both cartilages was found in one case, while in the other the internal cartilage was the only one affected. In both cases the synovial membrane near its tibial attachments was studded with hypertrophied villi; in one case the infrapatella fat pad appeared injured and somewhat enlarged. The operations consisted in the complete removal of the diseased cartilages and the abnormal portion of the synovial membrane. The injected fat pad was not removed, but it is now my opinion that it should have been; while the pain and discomfort in this knee was very much decreased, the joint cavity continued to contain an excess of synovial fluid.

The third case was for osteochondromatosis, in which the abnormal synovial was removed; no return of symptoms at the end of the year.

The fourth case was that of chronic arthritis, four years standing of unknown origin, in a man 43 years of age. The

symptoms were those of pain, grating sensation, and the distention of the joint cavity with fluid. The knee joint motion was limited to 60 degrees. In this case a complete exposure of the joint cavity was obtained through a split patellar incision, examination showed practically normal appearing semilunar cartilages, the synovial membrane was very much thickened and the infrapatellar fat pad injected and enlarged. The femoral condyles at their anterior synovial margin was studded with medium sized osteophytes.

In this case the complete removal of the synovial membrane from the anterior joint chamber with that of the infrapatellar fat pad and the femoral osteophytes was done. This case was lost sight of at the end of six months; at that time he expressed himself as being well pleased with the results obtained. The grating sensation and excess of fluid had disappeared; measurements of joint motion showed an additional loss of 10 degrees, but the remaining motion was practically painless.

CONCLUSIONS

1. That the attachment between the internal lateral ligament and the internal semilunar cartilage is responsible for the majority of cartilage injuries.

2. In cases of injury to the internal lateral ligament, injury to the internal semilunar should be conceded and treated accordingly.

3. Loosened or diseased cartilages that continue to give trouble should be removed.

4. The endoscope is a valuable aid in examining joint cavities, and in the removal of loose bodies.

5. That synovectomy in certain chronic joints is indicated.

STATIC DEFORMITIES OF THE FEET*

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Static deformities of the feet is a subject so large that it is impossible to consider all of them in the limited time at my disposal.

In this country it is the usual thing to have all phases of foot strain designated as flat foot, and every shoe clerk feels competent to treat the same with the use of foot plates, the majority of which are ill fitting and calculated to do harm. For this reason it might be well to discard the term flat foot and use the more comprehensive term foot strain, as many people with flat

feet suffer no inconvenience, while many individuals with high arches suffer a great deal with their feet.

The weight of the body comes down in the line of gravity through the astragalus to an elastic, weight-bearing arch, and is distributed through it to the ground. The line of gravity comes somewhat to the inside of the center of the support and comes upon an arch weaker in its inner component than in its outer, so that the tendency of superincumbent weight is to capsize the arch inward. Against this tendency it is

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protected by certain muscles and ligaments, and excess of weight or diminution of support are to be considered as the causes of foot strain, causing strain of muscles, ligaments, joints or wrongly distributed pressure.

There are many causes predisposing to foot strain, chief among which are badly fitting shoes, which cause distortion of the bones and a resultant atrophy of the muscles of the foot; weakness in muscles and ligaments following acute illness or severe injury to the leg; excessive weight from either body weight or carrying heavy loads; daily over use of the foot to the point of great fatigue, or excessive exercise to the point of fatigue following a long rest.

There are a number of types of feet and no one type can be called normal. There are three principal types: (1) The high arched foot, which when traced shows a weight bearing surface on the heel and from the heads of the metatarsals forward. (2) The type generally described as normal shows a weight bearing surface over the heel along the outer border of the foot and from the heads of the metatarsals forward. (3) The type usually described as flat foot shows a weight bearing surface over the entire sole broadest opposite the scaphoid. The first symptoms of foot strain are that the feet feel hot and uncomfortable, burn after use and perspire more than usual; then comes local stiffness and lameness particularly just after getting up; then will come local swelling, the gait becomes inelastic and in walking there is a tendency to evert the feet.

Stretching of the calcaneo-scaphoid ligament causes pain and tenderness under the tubercle of the scaphoid. Particularly in everted feet there is pain and tenderness below the internal malleolus and along the ridge of the astragalo-calcanean joint, and along the inner side of the os calcis. A common symptom in everted feet is a dragging sensation along the course of the tibialis posticus and fine crepitation may at times be felt. In acute cases the whole foot may become swollen and tender. In certain types of feet we find stiffness and muscular spasm in which adduction and inversion are painful. In the more severe cases we find peroneal spasm with the tendons standing out under the skin, and in some cases we find all the muscles of the foot and lower leg spastic.

Metatarsalgia is another common painful condition of the foot due to a falling of the metatarsal arch and a consequent pinching of branches of the plantar nerve causing a traumatic neuritis. The symptoms are

quite characteristic being a burning, cramping pain under the metatarsal heads, more commonly under the fourth. It occurs while walking or standing and is relieved by getting off the feet. In severe cases the suffering is so great that if the patient is seized with an attack on the street, he is forced to sit down and remove the shoe. Following an acute attack the foot remains tender for days and is sometimes followed by a numbness in the toe. The affection is usually unilateral, but occasionally slight symptoms appear in the other foot.

The causes of foot strain are in the order of frequency, (1) an everted and abducted foot which on account of the twist and abnormal weight bearing causes a disturbance of the heads of the metatarsals. (2) A short tendo-achilles and undue pressure coming on the front of the foot. (3) The highly arched foot with contraction of the dorsiflexors of the toes.

Treatment should be directed toward the correction of the abnormal thrust of the line of gravity and to the removal of pressure symptoms.

It should be remembered that a foot without symptoms, particularly in the adult, needs no treatment and I have seen cases where such feet were treated that caused marked symptoms and great discomfort.

In general, treatment is required for three classes of cases. (1) Acute painful feet, with no deformity; (2) Rigid flat foot; (3) Feet which are tender when strained, but where muscular correction is possible.

In the first class of cases the patients should be put at rest in the recumbent position, with hot foot baths, and, later, baking and massage. When the acute stage is passed, the foot can be put up in plaster of paris in an inverted and abducted position or drawn into this position by adhesive plaster strapping with a felt pad filling the arch of the foot. As soon as it can be done without pain, exercise should be given to cultivate inversion and abduction of the feet.

Flexible flat foot is best treated by raising the inner side of the heel one-fourth to one-third of an inch and, in some cases, placing a small wedge on the inner side of the foot just back of the head of the first metatarsal. This throws the weight on the outer border of the foot and causes the patient to turn the toes in while walking. Such patients should not walk in their bare feet and the muscles which invert and abduct the feet should be exercised so as to increase their strength.

In painful rigid flat foot, the patient

should be anesthetized and the foot mobilized by the use of a Thomas wrench; then, after thorough padding, should be put up in plaster of paris with the foot at right angles to the leg. The arch should be well supported and the foot inverted and abducted. When the symptoms of trauma have passed away, treat the case as in the flexible flat foot.

In early cases of metatarsalgia often all that is required is to split the sole of the shoe from the welt and pass a bar of sole leather one-half inch wide and one-fourth inch thick through in such a position that it comes behind the heads of the metatarsals. The same thing may be accomplished by having an accurately fitting metal plate shaped to fit the curve of the arch of the

foot, and running forward to a point just behind the heads of the metatarsals, so moulded as to press into the hollow of the foot just behind the heads of the metatarsals.

Where there is spasticity of the dorsiflexors of the toes this should be treated by massage and baking to overcome this, and, in extreme cases, a tenotomy of these done and the foot put up in plaster so padded as to restore the anterior arch and hold the toes in plantar flexion.

There are a number of other static disturbances of the feet such as shortened tendo-achilles, hallux rigidis, hallux valgus and hammer toe, which are less confusing, and I will not take up your time describing them.

CONSTIPATION*

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Constipation is, and always will be, the most common condition affecting the human race. It is said that every other man and every woman is constipated. While this statement may not be literally true, we must admit that it is not much of an exaggeration. Some years ago a physician was asked to give a definition of a woman, his reply was a "constipated biped."

Strictly speaking, constipation is not a disease but is a symptom of some other abnormal condition, very frequently due to habit. A writer has recently said that "There are many unconscious delinquents who hoard their feces as a miser hoards his gold, a certain amount is daily and laboriously given to the world but, in comparison to what remains behind, the amount is mean, physiologically insufficient and therapeutically ineffectual."

Constipation may be defined as the prolonged and abnormal retention of waste products in the alimentary canal due to habit, functional disease, or organic lesions of some portion of the intestinal tract. While obstipation is purely a mechanical condition due to some obstruction such as deformity, growth, abnormal flexion, constriction, foreign body in the intestinal canal, or anything which interferes with the normal passage of the feces, constipation is but a relative condition. One individual may have several passages daily and still not properly unload the intestinal tract, so that he is still absorbing poisons that should have been eliminated, while another individual may have but one passage a week and this condition be normal for him.

In considering the causes of constipation, Gant divides them into mechanical obstruction, defective peristaltic action, deficiency of the secretions, and sundry causes.

Under the first heading are included all those causes whereby the feces are prevented from having a free passage along the intestinal tract, as stricture, tumors, intussusception, adhesions with ptosis of the colon, enlarged prostate, prolapsed uterus, etc.

Irregular habits heads the list of causes of defective peristaltic action. The child in school receives the call of nature, the fecal mass is ready to be expelled, but in our modern school the lesson hour is more important than the physiological functions of the body, and the child is taught to restrain himself until recess. He resists and restrains Nature's effort and the desire passes away. What is said of the child in school applies to the lady in her daily avocations or in society and also to the business man in his occupation. They resist and restrain Nature's efforts and the inclination to go to stool is soon gone. The continuance of this performance day after day causes chronic constipation, due to a loss of sensation in the mucous membrane and a loss of tonicity of the muscles of the sigmoid and rectum. A sedentary life such as that of professional men, book-keepers, seamstresses, etc., old age and run down conditions of the body in which the muscles are relaxed and lack proper tone, cause defective peristalsis. The character and quantity of food taken affect both the secretions and peristaltic movements of the intestines. A vegetable or mixed diet which

leaves a sufficient quantity of undigested fiber stimulates the secretions and muscular action and causes larger and softer actions than does a concentrated diet. Insufficient fluids or too much fluid taken with the meal will often cause constipation. When enough fluid is not taken into the system too much fluid is absorbed from the contents of the intestines, leaving the mass hard and dry. And when too much fluid is taken in the stomach at meal time the acid secretions of the stomach are diluted too much and they are passed on from the stomach into the intestine to be mixed with the alkaline secretions of the intestine we do not have the proper chemical reaction.

Mental emotions, long continued worry, circulatory diseases, gastro-intestinal diseases, and any affection of the nerve supply of the gastro-intestinal tract are all provocative.

Rectal diseases, such as anal fissure, ulceration, hemorrhoids, tumors of the rectum, etc., interfere with the normal bowel movement both by the obstruction and pain they produce.

The diagnosis is not always easy. The patient does not come in every time complaining of insufficient or infrequent bowel movement; instead, he is more likely to come seeking relief from mental depression, languor, drowsiness, inertia, anorexia, headache, vertigo, neuralgia, pains in the abdomen, or he may have symptoms of toxemia or anemia. Then it is up to the physician to find the cause of the constipation. After having decided that the trouble in a case is due to insufficient bowel movement, the next step is to learn if it is a case of obstipation due to a mechanical cause, or constipation due to a functional cause. Instead of prescribing a laxative and sending the patient on, as is often done, a thorough anoscopic, proctoscopic and sigmoidoscopic examination, combined with a bimanual recto-abdominal examination, will often reveal the cause. In the cases of obstipation when these methods fail to locate the cause, an x-ray examination of the abdomen and pelvis will help to make the diagnosis. The causes of many cases of so called constipation which were aggravated in type and uninfluenced by any internal or physical therapy have been made very clear since the employment of radiography of the intestinal tract. A great many of these cases have been shown to be obstipation, the obstruction being due to exaggeration of the normal flexures, angulation, or ptosis with or without adhesions. The colon has been found to be the chief seat of the trouble in over 95 per cent of

the cases, the small intestine is very seldom at fault. Among the symptoms of constipation other than the irregularity and incompleteness of the evacuation may be mentioned headache, lassitude, foul breath, indigestion, loss of appetite, forgetfulness, vertigo, melancholia, anemia, sallow complexion, indicanuria, etc. In some cases the patient comes in and announces the trouble while in others it requires a very careful history of the case, a thorough physical examination, and all laboratory aid that we can command to make a diagnosis. Constipation being a relative condition and presenting such a variety of symptoms makes it a subject worthy of much more consideration than is usually given it.

Treatment: Obstipation being a mechanical obstruction necessarily requires mechanical correction for its relief, which of course must be surgery of the offending part. For the relief of constipation, dietic excesses and errors must be corrected, and the patient informed as to the time, the quantity and kind of food he may eat. His teeth must be in good condition so that he can thoroughly masticate his food. He should be instructed to drink plenty of water, a full glass of cold or hot water on arising and also on retiring. He should also be taught to drink between meals but sparingly while eating. He should eat a mixed diet with plenty of fruits and vegetables. Outdoor exercises of any kind that will develop and tone up the body are good. Any local condition, such as hemorrhoids, fissures, etc., should be corrected. Proctitis should be relieved by the proper dietary, and medications applied locally. If the sphincter is abnormally tight it should be dilated. Hirschman says, "most important of all, the atonic rectum and sigmoid should receive internal massage." He says that direct stimulation by means of mechanical dilation has given the best results. Hirschman uses a specially devised rubber bag for dilating and massaging the rectum and sigmoid which he claims gives very satisfactory results in many cases. In the beginning of the treatment it is necessary to unload the bowels thoroughly, and for this nothing is better than a good dose of castor oil. This should be followed by some mild laxative and tonic combined. My favorite prescription is a mixture of cascara and tincture of nuxvomica. This should be gradually decreased and the patient taught to have a regular time to go to stool each day and educate the bowels to move at that time. Habit in going to stool can have its tendency to correct constipation the same as neglect

can have its tendency to cause constipation.

The two main points that I desire to emphasize in this paper are, first, the importance of a thorough examination to determine the cause of the constipation, and

second, the recognition of the complications or symptoms produced by the absorption of toxic material from the bowels in cases where there is insufficient elimination.

IMMUNITY IN LOBAR PNEUMONIA

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Lobar pneumonia is an acute, infectious, and at times contagious¹ disease; it is one of the most wide-spread and fatal of all acute diseases; it claims the head of the family more often than any other infectious or contagious disease.

The U. S. Census Report for 1900 shows the death rate² for lobar pneumonia as follows: In persons from fifteen to forty-five years, it was 100.05 per 100,000 population per annum, from forty-five to sixty-five, it was 263.12 per 100,000, and in persons sixty-five or over, it was 733.77 per 100,000 per annum.

The question of immunity in lobar pneumonia has attracted attention far and wide, since immunization by vaccination has been perfected in typhoid fever.

In the Monographs³ of the Rockefeller Institute for 1917 the authors say: "In our opinion, as far as the prevention and cure of the disease is concerned, it is of the greatest importance that the chief stress should be laid on the etiological agent concerned." They recorded 480 cases in which the etiological agent was determined and pneumococcus was found to be responsible in 454. The average of three independent results shows that the pneumococcus is responsible for more than 95% of all cases of primary lobar pneumonia.

I beg to quote the conclusions of Lister⁴ in South Africa:

"(1) The blood serum of patients at the time of the crisis contains agglutinins and opsonins for the pneumococcus in 90% of the cases, whereas the serum of a normal person has never been found to contain these antibodies.

(2) These antibodies can be evoked in the blood serum of rabbits by suitable inoculation with pneumococcus vaccine.

(3) Rabbits whose blood serums contain these antibodies are resistant to experimental infection with fully virulent pneumococci, which invariably kill control uninoculated rabbits.

(4) Agglutinins and opsonins can be evoked in the blood serum of man by suitable inoculation with pneumococcus vaccine.

(5) Whereas 70% of all primary lobar pneumonia were normally due in our native compound population to one or other of the groups, A. B. C, it was found that over a period of nine months, during which time more than 10,000 recruits were admitted to the Crown Mines compound, not a single case of pneumonia arose caused by an infection with any of the three commonest pneu-

mococcus groups, A, B, and C, against which three groups only they had been inoculated.

(6) The heavy mortality from lobar pneumonia on the Premier Diamond Mine was reduced to one per thousand per annum, and that of Dr. Beers by approximately 50% following the use of pneumococcus vaccine as a prophylactic."

Orenstein⁵, in his evidence before the Low Grade Mines Commission in July, 1919, stated that there was a drop in the death rate from five per thousand in 1916 to 2.65 per thousand in 1917; he described this as an enormous drop, and did not think that it could be maintained. It was later reduced to 2.5 per thousand, the only prophylactic used being the pneumococcus vaccine, A, B, and C. An attempt was made to vaccinate every individual three times; some were vaccinated only twice.

Cecil and Austin⁷, in 1918, repeated the experiment previously carried out by Lister at the Crown Mine, and obtained similar results. They inoculated 12,519 U. S. troops at Camp Upton with a saline vaccine compound of the three pneumococcus groups, suggested by South African experience. During the period of observation, ten weeks, no case of pneumonia due to these groups arose among the men who had received two or more inoculations. In a control group of 20,000 men uninoculated, twenty-six cases of pneumonia, due to these three groups, occurred during the same period.

As additional evidence of the resistance of these inoculated men, it was found that their blood serums contained agglutinins subsequent to inoculation, and moreover, that 2 cc of this serum protected mice from many hundreds of times the dose of pneumococcus invariably lethal for normal mice.

In later experiments Cecil and Vaughn in America, Borrol⁸, Pierson and Mouchet in the Belgian Congo, reported favorable results on the use of pneumococcus vaccine as a prophylactic. Personally, I have treated more than two hundred cases of pneumonia with vaccine in the last six years, which contained the pneumococcus I, II and III without a relapse, without a complicating empyema, and without a second attack, so far as I know.

I have come to the conclusion that lobar pneumonia, treated with a vaccine which contains the pneumococcus I, II and III carries with it an active immunity, which lasts for at least six years. Here as in small pox, vaccination and revaccination is recommended.

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SINUS INFECTIONS

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 EL PASO, TEXAS

Infections involving the paranasal sinuses are probably more common than is generally recognized.

Anatomically we have the maxillary antrum located in the upper maxilla, with a capacity varying from ten to eighteen c. c. and opening near its roof into the middle meatus of the nose. The frontal sinus lies in the ascending ramus of the frontal bone, and normally extends from the mid-line to the supraorbital notch and opens into the middle meatus of the nose anteriorly and under the middle turbinate. The ethmoid cells embrace that portion lying between the two inner orbital plates and occupies approximately one-half of the entire space between the floor of the nose and the cribriform plate. The anterior ethmoid cells drain into the middle meatus along with the frontal sinus, while the posterior cells drain into the superior meatus. The sphenoid sinus occupies the body of the sphenoid bone and is situated directly behind the ethmoid cells of the posterior-superior portion of the nasal cavity and drains into the nose by an ostium in the upper third of its anterior wall. The capacity of the sphenoid is five to six c. c. The maxillary antrum, though small, is present in the new-born. The frontal sinus makes its appearance between the first and third year and up to the sixth or seventh year is no larger than a pea. From that time it grows rapidly larger. The ethmoid cells are present at birth. The sphenoid begins to develop about the fourth month, has reached fair proportions by the sixth year and is fully developed by the sixteenth.

ETIOLOGY

Sinus infections are acute or chronic. The acute infections may occur through extension of inflammation by contiguity of tissue, through traumatism, foreign bodies, contamination by pus from over-lying sinuses, and through direct invasion of the healthy sinuses by microorganisms. This is probably the most common cause, and is

especially likely to occur when the normal drainage channels have been blocked by the swelling of the nasal mucosa which occurs in the corizas that accompany grippal or flu attacks. We had many such cases in New Orleans the last two winters. Chronic sinusitis is likely to develop in recurrent acute attacks and especially where ventilation and drainage was not properly established in the first attack. Maxillary sinusitis of dental origin is quite common.

SYMPTOMS

Localized headaches are often, though not always, present. Such pains are increased by constipation, stooping, sudden jar and coughing; also by tobacco and alcohol. Tenderness on pressure over the infected sinus, cacosmia, and a nasal discharge lasting over six weeks are points strongly suggestive of an acute sinusitis. In chronic sinus infections the nose is often blocked by polyps. Chronic pharyngitis, laryngitis, rheumatism, sexual and psychological disturbances of the most varied types are often seen. Visual disturbances are not uncommon in ethmoid and sphenoid infections.

DIAGNOSIS

In a suspected case we look for pus in the nose. If seen to appear continually in the middle meatus and under the middle turbinate, we know it originates in the maxillary antrum, the frontal or anterior ethmoid cells. Washing out the antrum will demonstrate whether or not pus is present there. If present, we do not know but what it has acted as reservoir for pus draining from the sinuses above. If the patient remains in an upright position and pus again makes its appearance, we know it comes from the frontal or anterior ethmoid cells or both, because when one is affected the other is generally affected also. Pus is not always present in chronic sinusitis. For instance, we may have a hyperplastic ethmoiditis or sphenoiditis in which all the typical signs of a sphenopalatine ganglion

syndrome are present and yet not one drop of pus. There may be no pus in an antrum that is filled with polyps. I had such a case in the office a few days ago. X-ray and transillumination showed marked opacity of the right antrum and there was a polyp breaking through the naso-antral wall, but I could obtain no pus on attempting to irrigate. There was a distinct soggy-like resistance to the needle which I feel sure will prove on operation to be polypoid tissue. It is in these cases that x-ray and transillumination are most valuable. If pus is seen in the olfactory fissure between the middle turbinate and the septum, which reappears quickly after removal, we know we have an infection of the posterior ethmoid cells or the sphenoid, and as a rule, when one is affected the other is also. Transillumination does not help us in the study of these cells, and it is only recently that Granger of New Orleans has worked out a technic whereby a diagnosis of sphenoidal sinusitis can be made by the x-ray. I find the nasopharyngoscope of much help in these cases as one can get a clear view of this region and if pus or a hyperplastic condition is present it will be seen. In a chronic pharyngitis and especially the type involving the lateral walls we should suspect a chronic sinusitis involving the ethmoids and sphenoids.

TREATMENT

In the acute cases a purgative is given, the nasal mucosa is shrunk with cocaine and adrenalin at least twice daily, benzoinated vapors are inhaled and every effort made to establish ventilation and drainage. If the condition is not made much better by this method in a few hours, ventilation and drainage must be established by washing out the antrum, or, in case of the frontal, by removing the anterior tip of the middle turbinate and enlarging the naso-frontal opening.

For the cases that have developed to the chronic stage and a thick pyogenic membrane has taken the place of normal mucosa, or polypoid degeneration is present, there is no cure except by an operation that removes all of the diseased tissue. In case of antrum infection a large nasoantral opening is not sufficient. Most such cases, if relieved at all, will have a new attack each time a cold is contracted. The antrum

operation of Coldwell-Luc can generally be done with entire satisfaction by nerve block anesthesia. The pyogenic membrane is thoroughly removed and a large opening made into the inferior meatus as near the floor of the antrum as possible so as to insure drainage. This is one of the most satisfactory of the various sinus operations as a complete cure should be effected in all cases if care is taken to remove all of the diseased mucosa.

In the exenteration of the ethmoid cells the procedure, in my hands at least, has been greatly simplified by a modification of Sluder's technic. The operation can be done painlessly by applying 10% cocaine to the sphenopalatine ganglion area, located just above the posterior attachment of the middle turbinate, and another application made in the anterior superior portion of the nose to anesthetize the anterior nasal nerve. Complete anesthesia of the nasal mucosa is obtained by these two applications. It seems to me that the use of the Sluder knives is the simplest of the several technics devised for this operation. There is less trauma, less bleeding, less danger to orbital contents and cribriform plate, and it effects the most complete removal of cells of any operation I have had the privilege to see. When the ethmoid cells have been removed it is then an easy matter, in the cases indicated, to remove a portion of the anterior wall of the sphenoid, and all we wish to do in case of the sphenoid is to establish ventilation and drainage. No curettment of this sinus is attempted because of possible brain injury through dehiscences in the posterior wall.

The chronic frontal sinus should be dealt with by enlarging the naso-frontal opening and allowing free drainage. In most cases this is sufficient, but where the pus remains fetid, or the symptoms interfere with the business pursuits of the patient or cerebral or orbital complications threaten, we should resort to the radical operation of Killian as modified by Lynch of New Orleans. In this operation the floor of the frontal sinus is completely removed and the orbital fat allowed to fill in the space and in that way completely obliterate the sinus. No incision is made above the brow and therefore no disfigurement results, and a complete cure is to be expected.

AN UROLOGICAL PILGRIMAGE

By CHAS. S. VIVIAN, M. D. Phoenix, Arizona

Member of the American Urological Association

As pilgrims in order to reaffirm their faith, were wont to journey to their favor-

ite shrine, so those of us who see the altar of Hippocrates thru the cystoscope gath-

ered together in St. Louis in May, at the annual meeting of the American Urological Association.

The scientific program was preceded by a day of golf, the Association Handicap, followed in the evening by a dinner given by Drs. Bransford Lewis and C. E. Burford, at which the ladies were present and danced. The golf tournament was exceedingly successful. The writer won a prize. There were so many prizes donated by the St. Louis people that everybody got one. (Now we understand. Ed.)

The mornings were given over to urological, surgical and cystoscopic clinics, all of which were well attended. The first paper of the afternoon meeting was by Dr. Nelse F. Ockerblad of Kansas City, "Further Observation on the Application of the Creatinin Kidney Function Test," carried a message destined to advance still further the clinical determination of kidney function which began when the phenolsulphonphthalein was given to the profession; it serves to point again to the help which urology is giving general medicine thru the practical application of physiological chemistry. The report which is based upon over one thousand consecutive tests, shows that the procedure is valuable because it furnishes information not disclosed by other kidney function test and complements the information secured by blood chemical studies. It depends for its application upon the injection of a known amount of pure creatinin into the blood stream. The rapidity and concentration of creatinin elimination in the urine, when measured, gives an index of kidney function. It is possible that by this test, unilateral glomerular nephritis, if such condition exists, may be diagnosed. This may not be done by the phthalein test. A normal response to the test is considered to be three times the normal excretion over any given period of time when no intravenous injection has been given.

A paper which attracted much attention and one which for its clearness and preciseness of presentation surpassed any other was that given by Dr. Veader Leonard of Baltimore, by invitation, on "Clinical Application of Hexylresorcinol in Urology." Sterilization depends upon three commonly known factors plus a fourth which was less well understood until the work by Dr. Leonard was undertaken. The first three are of course concentration of the antiseptic, length of time of exposure to its action, and the temperature at which the reaction takes place. The fourth, which has been studied very painstakingly by Dr. Leon-

ard, is surface tension of the solution in which the reaction takes place. That is, in this instance, hexylresorcinol apparently, when taken internally, possesses the ability to lower the surface tension of the urine and the results obtained from its use seem to depend upon this fact, for when the surface tension of the urine is raised by other means, its antiseptic power is considerably lowered or entirely lost. In the discussion of this paper by men from various cities, the results reported were as variable as the locations from which the discussants came. The two factors which must constantly be kept in mind when dealing with infection of the genito-urinary tract, namely, obstruction plus infection, are not overcome by hexylresorcinol, but when obstruction and focal infection are eliminated it is useful in clearing up the residual infection.

The afternoon of the second day, after the president's address, was given over to a symposium on urography. The first paper by Dr. Roger Colgate Graves of Boston, was the only one which was real, the others being presented by lantern slides which were explained as they were thrown on the screen. Dr. Graves concluded that sodium iodide is still the best agent for pyelography. Dr. Wm. A. Frontz of Baltimore again emphasized the danger of using too great a pressure in filling the kidney pelvis and gave further endorsement to syphoning off the iodide solution after x-ray is completed. He condemned most strongly the practice of bilateral pyelography as a routine procedure. Illustrating his conclusions by lantern slides, he showed the importance of ruling out the possibility of a blood clot in the renal pelvis before making a diagnosis of tumor and of the possibility of the coexistence of renal tuberculosis and stone, whose shadows are much alike. He believes also that stereoscopic roentgenograms are of great value in the diagnosis of certain lesions. Drs. D. N. Eisendrath and I. S. Koll, of Chicago, showed slides of different pyelographic changes due to renal neoplasms and exhibited also examples of the different types of normal kidney pelvis. They showed one very interesting case in which thrombosis of the renal vein secondary to a phlebitis of the leg gave a typical pyelogram of renal tumor. The last paper of the symposium was by Dr. Braasch of Rochester, Minn., on the "Errors in Interpretation of Pyelograms" in which he demonstrated the difficulty of diagnosis of occlusion at the ureteropelvic juncture and of other seeming abnormalities of the ureter due to reflex muscular action. The paper was characteristically complete, although it contained

nothing not previously published. Each set of lantern slides showed beautiful examples of rotation of the kidney on its long axis.

The afternoon of the last day was largely occupied by a heated discussion of stricture of the ureter. Dr. Guy T. Hunner of Baltimore, who first directed the attention of the profession to this condition, was present to defend his position, while the opposition was led by Dr. Arthur L. Chute of Boston. Dr. George R. Livermore of Memphis and Dr. R. L. McKiernan of New Brunswick, N. J., read papers each illustrated by lantern slides and each thoroughly supporting Dr. Hunner's views. Dr. Hunner, in reading the last paper on the subject, anticipated what objections might be brought out in the discussion, i. e., failure to find stricture of the ureter post mortem, in stating that pathologists as a rule are not on the lookout for this condition and that the commonest type of stricture (that due to focal infection) does not come to autopsy, or if they do, are not properly prepared for study. That is to say that the ureter is not put upon the stretch so that the stricture may be outlined before section is made. He looks for more confirmation now that pathologists are more generally awakened to the subject. Although the discussion brought out some adverse views, it was apparent that the profession is willing to accept grudgingly, the existence of ureteral stricture but is loath to diagnose it as often as Hunner does. Altogether, his views were more generously supported than previously. In order to diagnose stricture of the ureter it is necessary not only to have the stricture shown on the ureterogram, but it is also necessary to prove that it is organic in contradistinction to a functional or spasmodic narrowing. This is done by passing a bulb catheter through the stricture which when pulled back, produces a distinct "hang" as it does in the urethra. The crucial test, Dr. Hunner believes, is recovery of the patient and relief of his symptoms after the ureter has been dilated.

Dr. J. P. Eisenstaedt of Chicago added to the literature of primary congenital dilatation of the ureter by presenting the case reports of two patients who came under his observation. This is the type of dilatation which occurs in the very young or in the fetus in whom there is no obstruction to the urinary flow. The lesion is bilateral, of extreme degree, may be associated with other congenital defects, and as yet is of unknown etiology. It is diagnosed by complete reflux from the bladder to the kidney pelvis in full column.

As is often the case, the simplest things are frequently of the utmost importance. This fact was emphasized by Dr. Arthur L. Chute of Boston in his paper which pointed out again the necessity of ureteral catheterization and ureterogram before operating to remove a stone from the ureter which is shown on simple x-ray in this region but which upon operation is found to be a calcified lymph node. This paper was intended for consumption and digestion by the general surgeon.

With the exception of the paper on hexyl-resorcinol, which incidentally is not chemically related to urotropin, the only paper which dealt entirely with therapy was one by Dr. Hugh H. Young of Baltimore on the problem of sterilizing of the urinary tract. As with all other drugs, caution is necessary and truth lies between the enthusiasts and the alarmists. Mercurochrome is not a cure all.

The management of bladder tumors, particularly of the inoperable type, was the subject of a very able paper by Dr. Ernest M. Watson of Buffalo. Electro-coagulation radium and divided doses of x-ray are still the only weapons which we have against those tumors which are inoperable but should not be used when excision is possible. Post-operative use of x-ray is being done.

From the Mayo Clinic, Dr. H. C. Bumpus reported five proven cases of sarcoma of the prostate treated by radium or roentgen ray. The rarity of this condition is testified to by the fact that only five cases were presented. The results obtained by radiation are probably superior to those when surgery alone is employed.

Three papers on Vasotomy were presented by Drs. Ernest G. Mark of Kansas City, Ben A. Thomas of Philadelphia, who was subsequently elected chairman of the section on Urology at the A. M. A., and Wm. T. Belfield of Chicago, who originated this method of treatment. When the procedure is indicated, it should be done on both sides, as Dr. Marks concludes. Dr. Thomas advocates vasopuncture rather than vasotomy as originally outlined by Belfield for the reason that he believes secondary infection and stricture are less apt to result. Dr. Belfield devoted his paper to the possible injury which might result from vasotomy and concluded that the only possible injury which can result in skillful hands is by regurgitation of irritating chemicals into the tissues at the point of injection resulting in cicatricial compression of the vas. If this does happen, it is a simple matter to resect that portion of the vas which is occluded.

In the discussion, it was brought out that results equal to or better than those from vasotomy may be secured through injection of the vesicles via the urethra, as pointed out by W. R. Delvell and O. S. Lowsley in 1923.

Among others elected to membership in the American Urological Association was Dr. W. G. Schultz of Tucson, the second member from Arizona. We take this opportunity to welcome him.

The report would be incomplete if we did not speak of the work of H. L. White in the Physiological Department of Washington University, who is investigating kidney function. He demonstrated the method by which urine is collected from a single glomerulus of an animal's kidney by putting a capillary tube through the capsule but not into the glomerulus itself. His published work is both instructive and very logical. (H. L. White, *American Journal of Physiology*, Volume LXV, No. 3, August, 1923, and Volume LXVIII, No. 3, May, 1924.)

The Section on Urology at the meeting of the American Medical Association in Atlantic City, May 26-29, 1925, which was very ably presided over by Dr. Robert V. Day of Los Angeles, was replete with new material.

The first paper by Dr. P. A. Rohrer, of Seattle, was a resume of the findings in four hundred patients referred by internists for routine study. He showed conclusively that neither a normal urine nor a negative plain roentgenogram are conclusive evidence of the absence of pathology in the G. U. tract.

A paper by Dr. Wm. C. Quinby of Boston on the teaching of urology to interns is filled with good common sense suggestions but is impracticable so far in Arizona.

Unfortunately, Dr. Lionel P. Player of San Francisco had so much material of an academic nature in his paper on "Autonephrectomy" that he was unable to finish it and therefore deprived us of the practical method of diagnosis which he has developed.

The paper, the reading of which gave your reporter an excuse for his trip East, was well received.

An extremely interesting practical fact was brought out in the paper by Drs. Wilbur H. Haines and L. F. Milliken of Philadelphia. They showed to their own satisfaction and to the satisfaction of those who discussed the paper, that contrary to the accepted belief, morphine and atropine given as a preliminary to ether narcosis, stimulates rather than inhibits the kidney excretion. They go so far as to state that

these drugs given together are indicated in the treatment of reflex anuria.

Drs. Veader Leonard and Austin H. Wood of Baltimore, presented the same material on Hexylresorcinol that Leonard presented in St. Louis. The discussion here, however, lead by Dr. Roy B. Henline of the Department of Urology of the James Buchanan Brady Foundation of the New York Hospital, was very much in favor of hexylresorcinol.

The Section Chairman's address, which was given on the morning of the second day, "Urological Problems of the General Practitioner, Internist and Surgeon," was so filled with practical suggestions and helpful hints for the men it is intended for, that space does not permit our doing it justice here. It will be published among the first papers in the *Jour. A. M. A.*

Dr. Parker Syms of New York, had the first paper of a symposium on prostatectomy giving his experience with the median perineal prostatectomy which he gave to the profession in 1900. He is strongly in favor of this route and with the addition of sacral anesthesia, believes it is the safest procedure. Dr. Chute, in the discussion, took issue with him on the employment of sacral anesthesia and reported two disasters which followed its use in his hands. He (Dr. Chute) prefers spinal anesthesia. Dr. Edgar G. Ballenger of Atlanta, Ga., presented a hemostatic bag for use after prostatectomy which has the advantage over the bags now in use that it may be inserted and withdrawn through the urethra post operative, thus doing away with the pain attendant upon the use of the present methods involving suprapubic insertion and withdrawal. Every prostatic should be typed as to his blood group and suitable donors secured before undertaking prostatectomy, is the position taken by Dr. Austin I. Dodson of Richmond, Va., who presented a paper on the "Value of Transfusion in Surgery of the Prostate." There are some disadvantages attendant upon this procedure as was brought out in the discussion, among which is the danger of severe reaction in an extremely debilitated subject whose kidneys are none too good. "Both cystoscopy and cystography are valuable as preoperative procedures before undertaking prostatectomy" if you would be sure that diverticula are not present in the bladder, Dr. Robert H. Herbst of Chicago very ably says. He also suggests that the atonic bladder, fibrosis of the internal sphincter, median bars of mucous membrane flaps, remaining post operative, polypi and other derangements of the posterior urethra, must be given due attention

if results are to be good. It was very truly said in the discussion that to avoid shock and kidney collapse, the time to do pre-operative cystoscopy should be chosen carefully.

Dr. Vincent J. O'Connor, of Chicago, presented a paper upon "Perirenal Sclerosis" which deserves much more than passing notice. Chronic perinephritis results in a sclerosis of the capsule of the kidney which in turn results in compression of the kidney with its resulting impairment of function. The diagnosis depends upon the history plus the findings of bilateral catheterization. Treatment consists of a very thorough decapsulation of the kidney which is difficult to do because of the dense adhesions around it. Indeed the results which were good in the reported cases depended for their success upon the thorough removal of these perirenal adhesions.

Lantern demonstrations of the paper on "Bladder Reflux," by Drs. D. N. Eisen-drath, Harry Katz and J. M. Glasser of Chicago, illustrated very beautifully both the congenital and acquired types of this condition. Its etiology probably has to do with the nervous mechanism of the ureteral orifices which by allowing them to relax permits the bladder contents to pass upward to the kidney pelvis.

A gram negative bacillus of the nitrifying group capable of breaking up urea into carbon dioxide and NH_3 is believed by Drs. B. H. Hager of Madison, Wis., and T. B. Macgrath of Rochester, Minn., to be the causative organism in the production of incruusted cystitis. They have complied with Koch's postulates with this organism. Treatment so far is not influenced by discovery.

Dr. Victor G. Vecki of San Francisco, does not believe that the treatment of gonorrhea has improved very much since 1875. He does believe, however, that much may be accomplished by gentleness and an effort at not pushing treatment in the early stages.

Focal infection may produce prostatitis and one should be careful to avoid calling every case of prostatic infection, gonorrhea. If the history is negative for gonorrhea in a truthful patient and exhaustive search fails to disclose the gonococcus, we are safe in concluding that the condition is one of non-venereal prostatitis. So says Dr. Theodore Baker of Pittsburg. Treatment is the same.

Dr. Donald Macomber of Boston has arrived at the conclusion that lowered fertility in the male is a variable quantity and may be influenced by diet, climate, muscular

tone and nervous energy as well as the more commonly known variation due to sex habits.

Dr. Daniel E. Shea of Hartford, Conn., illustrated by quotations from the literature and by cases from his own practice, the difficulty of diagnosis of stones which do not show upon x-ray examination. In the discussion, Dr. Wm. E. Lower of Cleveland, showed x-ray shadows which were made by exposing the pure salts of which urinary calculi are usually composed. As the atomic weight of the salt increases, its permeability to the x-ray diminishes and its shadow becomes more opaque.

Dr. Alexander Hamilton Peacock, of Seattle, delineated, in the last paper of the session, the method he employs when a calculus becomes impacted in the ureter. In the discussion of this paper, the important point emphasized was that so long as the kidney is not being damaged by the presence of a stone in the ureter, it is safe to resort to non-operative measures in an effort to make it pass. They should be done only once before operative intervention when the kidney is showing signs of failure.

While we were in Atlantic City, we heard rumors which were confirmed upon reaching New York, that one of the best known general surgeons in that city was being sued for \$250,000 because he cut down upon a kidney which was not diseased before he assured himself that the patient had another on the opposite side. He did not remove the kidney but the other kidney which was the site of pathology was treated by another man. The case had not been decided when we left New York a week later, but it looked then as though a verdict might be returned for the plaintiff. Moral: Don't operate on kidneys until you know which one is sick and that there are two.

In New York, it being the first of the month, we were privileged in being able to visit the urological staff conferences of both Bellevue and the New York hospitals. We also made rounds with Dr. A. R. Stevens who has taken the place as chief of the Urological Department of Bellevue Hospital left vacant by the retirement of Dr. Edward L. Keyes. The system which is followed in the staff conferences at Bellevue is one which was instituted by Dr. Keyes. Very little is said of the cases which are discharged as cured other than to enumerate them, the entire time of the meeting being given to a discussion of the unimproved and fatal ones. It was with a great deal of surprise that we learned that all

fatalities in Bellevue are not posted. We saw, however, specimens from a fatality following the intravenous administration of one per cent mercurochrome in which there were well marked ulcerations of the intestine due, as were the changes found in the kidneys, to the poisonous effect of mercury, so the pathologist said. There was another death reported as the result of nitrous oxide oxygen anesthesia although the patient was moribund when the gas was started, and another in which death was laid at the door of an overdose of ether. Neither Bellevue nor New York hospitals are using ethylene. We saw it used at St. John's Hospital in St. Louis. As soon as one enters the operating suite there, one is confronted by a sign which reads, "Danger! No Smoking; Ethylene Gas Being Used Here." There is one ward of six beds in Bellevue given over entirely to the treatment of gonorrheal epididymitis. The ward is always full and there are usually some four or five overflow cases elsewhere in the hospital. The method of treatment there consists of rest in bed and rest for the part, secured by a special bandage described by Dr. Clyde W. Collings of New York in the *Journal of Urology*, Volume VII, Number 6, June, 1922, and also by Dr. Keyes in the new edition of Cabot's *Modern Urology*. Four days is the average time these cases remain in hospital and none of them are operated upon unless they are unrelieved by the dressing or have a recurrence after leaving the hospital. Dr. Collings also is responsible for the method which is used here in the treatment of gonorrheal arthritis by means of plaster of paris casts. (*J. A. M. A.* December, 1921, Volume 77, pp 1789-1792.) In the ward where the prostatics are housed, a laboratory force pump is connected by a pipe leading around the room having a connection at each bed so that the bladders and the patients themselves may be kept dry.

In the out patient department of Bellevue, Dr. Collings showed us his method of treating obstruction of the bladder neck by means of the "radiotherm" by which through the use of radio bulbs the frequency of the current is increased to the point where it is all voltage with very little amperage. The result is cutting without bleeding and which is of more importance, without charring, pain and sloughing which usually follows the present high frequency operations. Diagnosis in the Urological Department at Bellevue under Dr. Stevens' direction is very thorough, careful and painstaking. Nowhere else have we seen cases more fully worked up before operation.

The Urological Department of the New York Hospital under the direction of Dr. O. S. Lowsley is maintained as the James Buchanan (Diamond Jim) Brady foundation. Dr. Lowsley's surgical clinics were crowded during the entire period of our stay in New York. At the urological staff meeting here, we saw the post mortem specimens from a case of milary tuberculosis where the original focus was represented by a caseous lesion in the testicle. This was very interesting because of the fact that genital tuberculosis rarely begins in the testicle. We saw also, among other very interesting roentgenograms, seminal vesicles injected through the urethra by Dr. Delzell as outlined above.

Dr. Gritter, nephew of Dr. Ramon Gritter, one of the organizers of the American Urological Association in 1902, who is working at the New York Hospital, had just returned from a year spent in the urological clinics of France. He gave a most interesting account of the high spots which he touched there.

New York got too hot for us so we journeyed to Montreal where we visited McGill and watched Dr. W. MacKenzie work. He is a very deliberate, thorough finished operator. We also visited the Montreal General Hospital where we saw Dr. R. E. Powell work. While in Montreal, we had also an opportunity to see Dr. Archibald work and to talk to him of his work in thoracic surgery. No visit to Montreal would be complete if one did not visit the clinic of this master surgeon. While at McGill, we saw Sir Henry Grey, Chief of Staff late of Scotland, who operates after the custom of the old country in white rubber boots. At McGill, they are preparing special rooms which are to house the entire library of the late Sir William Osler.

Through the whole trip we were impressed by one fact at every stop, namely: that none of the hospitals which we visited are equipped for urological diagnosis and treatment more thoroughly than our own St. Joseph's and Deaconess.

ZINC STEARATE DUSTING POWDERS FOR INFANTS.

The second report of the Committee on Accidents from Zinc Stearate Dusting Powders appointed by the Board of Trustees of the American Medical Association has recently been published. Copies of this report, with an appendix showing the opinions of thirty-four representative pediatricians on the therapeutic value of such powders, can be obtained on request. Address, Committee on Zinc Stearate Dusting Powders, American Medical Association, 535 North Dearborn Street, Chicago, Illinois, enclosing a self-addressed, stamped envelope.

There were reported to the Committee 131 accidents from the inspiration of zinc stearate dusting powders by infants. Twenty-eight of the victims

died. The committee conferred with representatives of certain distributors concerning the dangers incident to the use of such powders on infants. Following a meeting held at the headquarters of the American Medical Association, these distributors agreed to cooperate by adopting self-closing containers for the powders they distribute and agreed that cautionary labels are desirable. Opinions were secured from thirty-four representative pediatricians concerning the therapeutic value of zinc stearate dusting powders. Thirty-one believe that such powders have no advantage over other dusting powders, that they constitute a hazard to infant life, and that their use should be discouraged.

NOTED CHEMISTS WILL GIVE AID TO HOOVER

Committee Named to Help Map Program for the Benefit of Industry.

The appointment of an advisory committee composed of out-standing members of the chemical industry to cooperate with the Department of Commerce has been announced by Secretary Hoover.

The purpose of this committee is to assist the chemical division of the department in mapping out a program of work which will be of the most practical and immediate benefit to the industry.

The membership of the committee, as announced by Secretary Hoover, includes Dr. Leo Bakeland, president, American Chemical Society and inventor of bakelite; Dr. A. S. Burdick, president of the Abbott Laboratories of Chicago, and formerly president of the American Drug Manufacturers' Association. Dr. H. E. Howe, editor of the Journal of Industrial and Engineering Chemistry; Dr. Charles H. Herty, president of the Synthetic Organic Chemical Manufacturers' Association; Henry Howard, chairman of the board of governors of the Manufacturing Chemists' Association; G. Ober, president of G. Ober & Sons, Baltimore, and past president of the National Fertilizer Association; E. G. Trigg, president of John Lucas & Co., Philadelphia, and president of the Agricultural Insecticide and Fungicide Association; A. Cressy Morrison, president of the Acetylene Gas Manufacturers' Association, and S. W. Wilder, secretary of the Manufacturing Chemists' Association.

THE SELECTION OF A PHYSICIAN

The selection of a physician for an operation or as a family doctor, is usually made with some care. We consult those who have employed physicians and are governed largely by their recommendations. But having selected a physician, we follow his advice. We trust him even to the extent of submitting to operations that may have serious results.

The point is, we trust THE MAN WHO KNOWS.

Now, doctor, the institutions and the firms advertised in this Journal were carefully investigated before their announcements were printed here. The medicinal products were submitted to laboratory tests before they were accepted by the Council on Pharmacy and Chemistry.

On the same principle that patients trust you about matters with which you are informed, so your publishers urge you to trust their judgment and buy goods from the advertisers who are admitted to these pages. Other considerations being equal, you should give your advertisers PREFERENCE because you know they are believed to be trustworthy. Don't speculate or experiment! Trust the APPROVED firms and goods!

AUGUST VON WASSERMANN

By the United States Public Health Service.

The death of Professor August von Wassermann on March 16, 1925, has deprived the medical world of one of its ablest investigators and the human race of a benefactor. Through his continued studies he has made several lasting contributions to the body of knowledge basic to general race betterment.

Wassermann was born February 21, 1866, at Bamberg, Bavaria. His father was a royal banker who gave his son the opportunity to gain a sound general and professional education. Wassermann studied medicine at the universities of Erlangen, Munich, Vienna and Strassburg, receiving his degree from the last named institution in 1888. He then became assistant for infectious diseases at the Koch Institute of the Charité at Berlin, gaining the title of professor in 1898. In 1901 Wassermann was given an appointment to the University of Berlin as Professor Extra-Ordinary (Privatdozent), a position carrying with it no emoluments outside of the opportunity to teach and experiment in the university medical school and its laboratories. Within a year his unselfish devotion and keen interest in the science of medicine brought him a full professorship. In 1906 he assumed the duties as head of the Division for Experimental Therapy and Serum Research at the Royal Institute for Infectious Diseases at Berlin. In 1913 he added to his duties those of director of the newly founded Kaiser Wilhelm Institute at Dahlem, near Berlin, an institute for experimental therapeutics.

Wassermann made a far reaching and important contribution to forensic medicine by "his precipitin reaction which distinguishes the blood of men and animals by differentiating albumin bodies contained therein."

His greatest discovery, the complement fixation test in syphilis, was announced in 1906. This, the so-called "Wassermann Test," is an application to syphilis of a general reaction discovered by Bordet and Gengou.

Though Wassermann's name has been connected with important researches dealing with the problems of cancer and tuberculosis, he has enshrined his name in medical annals by virtue of his work in the diagnosis and treatment of syphilis. Wassermann, a distinguished pupil of Koch and Ehrlich, has earned the name of a great benefactor of humanity.

SITUATIONS WANTED

WANTED—Salaried appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

Feeding the Ailing Infant

PURE, plain gelatine added to the baby's formula, not only makes the milk more digestible, but it also increases the nourishment obtainable by about 23%, according to the standard feeding tests conducted by Dr. T. B. Downey, Fellow at the Mellon Institute, University of Pittsburgh.

This addition of Knox Sparkling Gelatine to the milk diet is particularly recommended where infants are suffering from malnutrition, indigestion, regurgitation and vomiting, curdy stools, diarrhoea, constipation, colic or excessive gas formation.

Here is the most approved method of modifying baby's milk with gelatine:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in $\frac{1}{2}$ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults, follow the same method, but in the proportion of $\frac{1}{2}$ teaspoonful of gelatine to a glass of milk.

In infant feeding the gelatine may be added to any regular formula prescribed by the physician.

To safeguard against impurity and disturbing acidity, it is essential to specify Knox Sparkling Gelatine, the Highest Quality for Health.

The physician's reference book of nutritional diets with recipes will be sent free to physicians or hospitals, upon request, if they will address the Knox Gelatine Laboratories, 438 Knox Avenue, Johnstown, N. Y.

Southwestern Medicine

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PROCEEDINGS OF THE FORTY-THIRD ANNUAL SESSION OF THE NEW MEXICO STATE MEDICAL SOCIETY

Held at Clovis, New Mexico, May 19-21, 1925

The Forty-Third Annual Session of the New Mexico State Medical Society convened May 19, 1925, at Clovis, New Mexico, in the High School Auditorium.

Registration at the secretary's desk began at 9 a. m., and continued throughout the meeting, although the majority had registered before the end of the first day's session.

The Council met at 9:30 a. m., considered, and made recommendations on applications for membership. A committee was appointed composed of Dr. H. A. Miller (Clovis) and Dr. W. T. Joyner (Roswell) to examine and report upon the constitution and by-laws of the Union County Medical Society, which had been organized during the year. Adjournment followed at 1 p. m., until 8:30 a. m., May 20th.

At 10 a. m. the morning session was called to order by Dr. J. W. Stofer (Gallup), President, and following invocation by Rev. J. F. Nix, address of welcome was delivered by Honorable J. W. Board, Mayor of Clovis.

The minutes of the Forty-Second Annual Session of the Society were read in abstract form and approved.

President-elect, Dr. D. B. Williams (Santa Fe) was introduced by President Stofer, and delivered his address entitled "Current Progress and Trend of Preventive Medicine." (Published elsewhere in this issue.—Ed.)

Following the opening exercises, a meeting of the House of Delegates was held, at which the reports of the Secretary-Treasurer were read and approved.

Applications for membership were considered and voted upon separately, the following named being unanimously elected to membership in the Society:

Dr. J. G. Russell, Mora, N. M.

Dr. F. W. Walker, Mosquero, N. M.

The president presented for consideration the question of the passing and broadcasting of a res-

olution upholding the purposes and aims of the World Court, and after considerable discussion and affirmative vote, appointed a Committee composed of Dr. J. W. Stofer (Gallup), Dr. James R. Scott (Albuquerque), and Dr. C. B. Elliott (Raton) to draw up a suitable resolution and present it at the next meeting of the House of Delegates.

Correspondence was presented relative to the establishment of a Women's Auxiliary to the Society, the specific request involved being the appointment of a woman to represent the Society at the meetings of the Women's Auxiliary, to be held at Atlantic City. After proper motion and vote, the president was authorized to appoint some available woman, if he could find any such who was going to Atlantic City, to attend the meetings of the Women's Auxiliary and represent the Society.

Adjournment took place at 12:10 p. m., until 1 p. m., May 20th.

SCIENTIFIC SESSION May 19, 1925

The afternoon scientific session was called to order at 1:30 p. m., by the president, Dr. D. B. Williams (Santa Fe).

Considerable shifting of the program as originally outlined was necessary to accommodate the visiting physicians, and to Dr. J. W. Cathcart (El Paso, Texas) fell the honor of leading off the scientific papers. His subject, "Cancer—And the Value of Radiation in Malignancies of the Breast and Uterus," was one of intense interest owing to the rapid and marked increase in this disease, and liberal discussion ensued, which was opened by Dr. A. R. Hatcher (Wellington, Kansas), continued by Drs. S. P. Kaadt (Clovis), J. W. Kinsenger (Roswell), G. S. Luckett (Santa Fe), and closed by Dr. Cathcart.

Dr. A. M. Washburn (Camerco), presented his paper entitled "Pemphigus," which described in detail the case of a man who died from this disease. Discussion was opened by Dr. J. W. Kinsenger (Roswell), continued by Dr. J. W. Cathcart (El Paso) and closed by Dr. Washburn.

"Blood Matching for Transfusion, Including the Method of Transfusion by the Citrated-Blood Method" was portrayed by Dr. Lee Yater (Cleburne, Texas), in an interesting manner, Dr. J.

R. Scott (Albuquerque) opening the discussion, which was then closed by Dr. Yater.

The meeting adjourned at 5 p. m. until 8 p. m., at which time a public session was held in the High School Auditorium, Dr. W. H. Jenkins, Denver, Colo., lecturing on "Smallpox and Vaccination."

May 20, 1925

Meeting of the Council was called to order at 8:30 a. m. by Dr. D. B. Williams (Santa Fe), president, with the following members present: Dr. Williams (Santa Fe), Dr. C. M. Yater (Roswell), Dr. W. T. Joyner (Roswell), and as alternates, Dr. P. G. Cornish, Jr., (Albuquerque), representing P. G. Cornish, Sr.; Dr. F. D. Vickers (Deming), representing Dr. P. M. Steed, and Dr. F. G. Merrell (Clovis), representing Dr. H. A. Miller.

Report of the Committee on the Constitution and By-Laws of the Union County Medical Society, composed of Drs. H. A. Miller (Clovis) and W. T. Joyner (Roswell) was requested, but Dr. Joyner, representing the Committee, asked an extension of time in which to make report, which was granted.

Nominations for the office of Associate Editor for Southwestern Medicine, the official journal for the Society, for the ensuing year, resulted in the selection and unanimous election of the present incumbent, Dr. C. M. Yater (Roswell).

As members of the Board of Managers, Southwestern Medicine, Dr. H. A. Miller (Clovis) and Dr. C. F. Beeson (Roswell), the present incumbents, were unanimously re-elected.

The practice of the Grant County Medical Society in permitting membership in that Society of physicians not registered in the state and therefore not eligible for membership in the State Society was thoroughly discussed. The secretary was instructed, after motion, duly seconded and carried, to notify the Grant County Medical Society that by action of this Council, the Society could include as honorary members physicians from other states, but only bona fide physicians of Grant County, registered to practice medicine in the State of New Mexico, could be elected as regular members.

Request was made by a visiting physician who presented certain cards for inspection, that the Council go on record in regard to professional advertising, and a Committee of two, composed of Drs. F. D. Vickers (Deming) and P. G. Cornish, Jr., (Albuquerque), was appointed by the president to consider the matter and report at the next Council meeting.

Adjournment took place at 9:15 a. m., until 8 a. m., May 21st, the closing day of the meeting.

Immediately after the close of the Council meeting, the morning scientific session was called to order at 9:16 a. m., by the president, Dr. D. B. Williams (Santa Fe).

Dr. James R. Scott (Albuquerque) presented a masterly paper entitled "Municipal Milk Control," citing the advantages derived from proper milk supervision, and describing methods in vogue at Albuquerque, where model milk ordinances are now in force. Discussion, opened by Dr. J. A. Smith (Roswell), continued by Drs. J. W. Kinsinger (Roswell), M. K. Wylder (Albuquerque), G. S. Luckett (Santa Fe), C. L. McClellan (Clovis), J. G. Holmes (Alamogordo) and closed by Dr. Scott, was liberal and numerous points were well taken.

"Mental Hygiene," by Dr. C. W. Thompson (Pueblo, Colo.), was read by the author, but discussion was postponed until the afternoon session to permit the members of the Society to accept the hospitality of the Clovis Chamber of Com-

merce at a dinner given in their honor. Recess was therefore declared at 11 a. m., to 1:30 p. m.

Afternoon Session

Dr. D. B. Williams (Santa Fe), president, called the meeting to order at 2 p. m., announcing the program would be resumed with discussion of Dr. Thompson's paper. This was opened by Dr. H. M. Smith (Las Vegas), continued by Dr. Karl A. Meninger (Topeka, Kansas), and closed by Dr. Thompson.

Dr. Karl A. Meninger (Topeka, Kansas), in a well prepared paper entitled "Treatment of Mental and Nervous Disorders," emphasized the importance of the early and proper handling of this type of cases. Discussion was opened by Dr. C. W. Thompson (Pueblo, Colo.), continued by Dr. H. M. Smith (Las Vegas) and closed by Dr. Meninger.

A recess of thirty minutes was then taken to permit a meeting of the House of Delegates, which was called to order at 3:30 p. m., by the president, Dr. D. B. Williams (Santa Fe).

At roll call, members responding as present, in addition to the president, Dr. D. B. Williams (Santa Fe) and secretary, Dr. C. M. Yater (Roswell), were: Dr. J. R. Scott (Albuquerque), Dr. J. R. Van Atta (Albuquerque), Dr. M. K. Wylder (Albuquerque), Dr. W. G. Hope (Albuquerque), Dr. W. T. Joyner (Roswell), Dr. H. A. Ingalls (Roswell), Dr. F. G. Merrell (Melrose), Dr. H. M. Smith (Las Vegas), Dr. W. A. Bristol (Clayton), Dr. G. S. Luckett (Santa Fe), Dr. H. A. Miller (Clovis) and Dr. P. G. Cornish, Jr., (Albuquerque).

Election of officers ensued, the following nominations being made and the nominee duly elected to the respective offices:

President Elect—

Dr. C. W. Beeson, Roswell, N. M.

Vice President—

Dr. H. M. Smith, Las Vegas, N. M.

Secretary-Treasurer—

Dr. C. M. Yater, Roswell, N. M. (Reelection.)

Councillors for term of three years—

Dr. J. R. Scott (Albuquerque) replacing Dr. P. G. Cornish, Sr.

Dr. F. D. Vickers (Deming), replacing Dr. P. M. Steed.

Delegate to American Medical Association for 1926-27—

Dr. H. A. Miller (Clovis).

Alternate—

Dr. F. H. Crail (Las Vegas).

Following the election of officers, the president appointed a Committee composed of Dr. H. A. Ingalls (Roswell), Dr. M. K. Wylder (Albuquerque) and Dr. J. W. Stofer (Gallup) to draw up suitable resolution thanking the city of Clovis, the Curry County Medical Society, and other organizations, for the courtesies extended the Society during the meeting.

A Committee on Necrology, composed of Drs. J. R. Scott (Albuquerque), G. S. Luckett (Santa Fe), and W. G. Hope (Albuquerque), was appointed by the president.

The Committee appointed to draw up suitable resolutions in connection with a World Court presented the following:

"WHEREAS, we, the New Mexico Medical Society believe that the World Court as proposed by Harding and Hughes is non-political in scope and may be conducive to world peace; Therefore, be it resolved by the New Mexico Medical Society that we express a desire to have a record vote by the United States Senate on the Court at the next session of the United States Senate, in December next, and that copies of this Resolution be sent

to the members of the Senate, particularly the Foreign Relations Committee."

(Signed) J. W. STOFER, M. D.

JAMES R. SCOTT, M. D.,
Committee.

After proper motion and second, the report of the Committee, as read, was adopted.

Dr. M. K. Wylder (Albuquerque) read a telegram received by him from the Chamber of Commerce in that city, urging that Albuquerque be selected as the place of meeting for 1926.

On motion of Dr. H. M. Smith (Las Vegas), seconded by Dr. J. R. Van Atta (Albuquerque) that the next meeting, the Forty-fourth Annual Session of the Society, be held at Albuquerque, vote resulted in the unanimous selection of this city as the meeting place for 1926.

Dr. M. K. Wylder (Albuquerque) moved that the Amendment to the Constitution, Article 9, Section 1, striking out the words "three vice-presidents, a secretary, a treasurer," and inserting in lieu thereof, the words "a vice-president, and a secretary-treasurer," which had been made in the form of a resolution at the last Annual Session and held over until this meeting, be adopted. The motion was seconded by Dr. W. T. Joyner (Roswell) and carried.

The president appointed a Committee, consisting of Drs. J. R. Van Atta (Albuquerque) and A. L. Dillon (Clovis) to draw up suitable resolutions, with what action, if any the Society would take toward promoting the movement for periodical health examinations, and report at the next meeting.

Dr. G. S. Luckett (Santa Fe) made motion that a vote of thanks be extended by the Society to Dr. C. M. Yater (Roswell), for his untiring and faithful work as Secretary-Treasurer of the Society. This was seconded by Dr. M. K. Wylder (Albuquerque) and unanimously carried, the president extending the thanks of the Society to Dr. Yater.

Motion to adjourn was entertained at 4 p. m., to reconvene at 1:30 p. m., May 21st.

Immediately after adjournment of the House of Delegates, the scientific session was resumed, and Dr. A. C. Scott, Jr., (Temple, Texas), read his paper entitled "The Use of Iodine in the Treatment of Goiter," which was followed by the paper of Dr. H. N. Lawson (Amarillo, Texas), entitled "The Significance of Thyroid Disorders to the General Practitioner." The two papers were discussed in unison, discussion being opened by Dr. C. F. Beeson (Roswell), continued by Dr. G. S. Luckett (Santa Fe), Dr. W. F. Dutton (Amarillo, Texas), Dr. P. G. Cornish, Jr., (Albuquerque), and closed by Drs. Scott and Lawson.

Dr. M. K. Wylder (Albuquerque) read his paper entitled "Importance of Prevention in Infantile Diarrhea," which was freely discussed by Dr. J. G. Holmes (Alamogordo), opening discussion, Dr. James R. Scott (Albuquerque), Dr. G. S. Luckett (Santa Fe), and closed by Dr. Wylder.

Motion to adjourn was entertained at 5:15 p. m., to reconvene in scientific session at 9 a. m. May 21st.

May 21, 1925.

At 8:15 a. m., the meeting of the Council was called to order by the president, Dr. D. B. Williams (Santa Fe), the following members being present: Dr. Williams (Santa Fe), Dr. C. M. Yater (Roswell), Dr. W. T. Joyner (Roswell), Dr. F. D. Vickers (Deming), and Dr. J. R. Scott (Albuquerque).

Dr. F. D. Vickers (Deming), a member of the Committee appointed to consider the question of professional advertising, reported that it had been impossible to obtain a copy of the ethics as out-

lined by the American Medical Association. After discussion by the members present, it was deemed that this matter did not come within the province of the Council, and motion was made by Dr. J. R. Scott (Albuquerque) that the question of professional advertising be referred to the individual County Society, which was seconded by Dr. C. M. Yater (Roswell) and carried.

Dr. J. R. Scott (Albuquerque) moved that the Secretary-Treasurer be authorized to pay all salaries and bills owed by the New Mexico Medical Society, which was carried after proper second by Dr. F. D. Vickers (Deming).

Secretary Yater announced that he had received the application of Dr. E. J. Hay (Garrison), with the initial fee of \$5 and as his credentials were in proper form, he moved that the Council recommend to the House of Delegates that Dr. Hay be elected to membership. The motion was seconded by Dr. J. R. Scott (Albuquerque) and carried.

Dr. W. T. Joyner (Roswell) submitted report of the Committee appointed to examine the Constitution and By-Laws of the Union County Medical Society, as follows:

"Your Committee appointed to examine the Constitution and By-Laws of the Union County Medical Society beg to report that it has done so and found them in regular order and in harmony with the Constitution and By-Laws of the New Mexico Society, and recommend that a charter be issued to the Union County Medical Association."

(Signed) H. A. MILLER, M. D.

W. T. JOYNER, M. D.

Committee.

No further business coming before the meeting, motion to adjourn was entertained at 9 a. m.

Following the adjournment of the meeting of the Council the scientific session was called to order by the president Dr. D. B. Williams (Santa Fe), and in the absence of the authors, the following papers were read by title:

"The Value of Radio-Active Waters in the Treatment of Diseases"—Dr. L. M. Maus, Hot Springs, Arkansas.

"Some Problems in Prostatectomies"—Dr. Robert Day, Los Angeles, Cal.

"The Therapeutic Action of Aniline Dyes"—Dr. Paul Gallagher, El Paso, Texas.

"Surgical Consideration of the Hand"—Dr. W. H. Woolston, Albuquerque, N. M.

"Allergy and Asthma"—Dr. Orville H. Brown, Phoenix, Ariz.

"Syphilitic Aortitis"—Drs. E. A. Duncan and W. W. Waite, El Paso, Texas.

"Diagnosis and Surgical Treatment of Gall Bladder Diseases"—Dr. James Vance, El Paso, Texas.

"Tumors of the Kidney"—Dr. K. D. Lynch, El Paso, Texas.

"X-Ray Differentiation in the Right Upper Quadrant"—Dr. R. T. Wilson, Temple, Texas.

"Radium Therapy"—Dr. A. R. Hatcher, Wellington, Kansas.

The paper of Dr. Forest Dutton, Amarillo, Texas, entitled "Comparative Studies in the Treatment of Tuberculosis," was then read by the author, considerable discussion ensuing which was opened by Dr. F. D. Vickers (Deming), continued by Dr. C. M. Yater (Roswell), Dr. M. K. Wylder (Albuquerque), Dr. H. J. Caldwell (Amarillo, Tex.), and closed by Dr. Dutton.

"Diagnosis of Pulmonary Tuberculosis by the General Practitioner," by Drs. W. H. Cryer and F. D. Vickers (Deming), was read by Dr. Vickers, discussion being opened by Dr. W. F. Dutton (Amarillo, Texas), continued by Dr. M. K. Wylder (Albuquerque), Dr. J. W. Kinsinger (Roswell), Dr. H. A. Ingalls (Roswell), Dr. C. L. McClellan (Clovis), Dr. G. S. Luckett (Santa Fe), and closed by Dr. Vickers.

This was followed by Dr. V. M. Longmire, Temple, Texas, whose paper on "Diabetes" attracted keen attention, and discussion, after being opened by Dr. W. T. Joyner (Roswell), was continued by Dr. F. D. Vickers (Deming), Dr. F. A. Dillon (Clovis), Dr. C. M. Yater (Roswell), Dr. J. W. Kinsinger (Roswell), and closed by Dr. Longmire.

The morning session concluded, motion to adjourn was entertained at 11:30 a. m., to reconvene at 1:30 p. m., following the meeting of the House of Delegates.

Afternoon Session

At 1:30 p. m., the House of Delegates was called to order by Dr. D. B. Williams, president, there being present Drs. Williams (Santa Fe), C. M. Yater (Roswell), J. R. Scott (Albuquerque), F. D. Vickers (Deming), H. A. Ingalls (Roswell), M. K. Wylder (Albuquerque), C. L. McClellan (Clovis), A. M. Washburn (Cameron), and Dr. H. J. Caldwell (Amarillo, Texas, Texas Fraternal Delegate).

The minutes of the meeting of the Council were read and approved and the application of Dr. E. J. Hay (Garrison) for membership in the Society was presented for consideration. It was moved and seconded that Dr. Hay be elected by acclamation, which was carried by unanimous vote.

The Committee appointed to draw up suitable resolutions thanking the city of Clovis, the Curry County Medical Society and other organizations for the courtesies extended the Society while in session, presented the following resolution for consideration:

"WHEREAS, the New Mexico Medical Society in annual session at Clovis, New Mexico, May 19-21 inclusive, has had a most interesting, pleasant and profitable meeting, Be It Resolved, that the thanks of this organization be extended to the Curry County Medical Society, the Clovis Chamber of Commerce, the Clovis Lodge of Elks, the Choral Club, the Kiwanis Club, the High School, the High School Orchestra and the Boy Scouts."

(Signed) H. A. INGALLS, M. D.

M. K. WYLDER, M. D.,

J. W. STOFER, M. D.,

Committee.

After proper motion and second, followed by unanimous vote, the resolution was declared approved and adopted.

The Committee on Necrology presented a form of resolution to be sent to the families of deceased members who died during the past year, namely: Dr. O. J. Westlake, Silver City; Dr. C. H. Jameson, Torrance County; Dr. W. H. Tipton, Las Vegas; Dr. E. M. Parvis, Socorro; Dr. James H. Wroth, Jemez Springs, and Dr. Oglesby, Santa Fe.

This was adopted by unanimous vote and the secretary so instructed.

Dr. W. T. Joyner (Roswell) brought up the question of the appointment of Fraternal Delegates, making motion that the president be authorized to appoint Fraternal Delegates for Texas, Arizona, Colorado and Oklahoma, for the 1926 meetings. After second by Dr. H. A. Ingalls (Roswell), the motion was carried.

Dr. W. T. Joyner (Roswell) submitted a letter received by him from the Surgeon General of the Army, which was evidently intended for the Society, with reference to the examination of applicants for Citizens Military Training Camps without expense to the applicant or to the Government, and made motion that a resolution be adopted and a copy sent to the various County Societies, as follows:

"Whereas, the Surgeon General of the United States Army has requested that applicants for Citizens Military Training Camps be examined without expense to the applicant or to the Government; be it therefore resolved, that the House of Delegates of the New Mexico Medical Society

recommend to the County Societies that they tender their services to the Surgeon General of the United States Army in the examination and immunization of such candidates for Citizens Military Training Camps, as may apply to them, and that the secretary furnish each County Society with a copy of this resolution and request that it take such action as may be agreeable to the majority of the Society."

After proper second by Dr. C. L. McClellan (Clovis), and affirmative vote, the motion was carried.

In the absence of the Committee appointed to consider and report upon the question of periodical health examinations, the subject was brought up and discussed freely and fully by various members, the majority urging that some action be taken. The president, Dr. D. B. Williams (Santa Fe) therefore appointed a Committee, composed of Drs. J. R. Scott (Albuquerque) and H. A. Ingalls (Roswell), to draw up suitable resolutions to present to the Society for consideration and suitable action before adjournment.

After a short recess, the Committee presented the following resolution:

"Recognizing the importance to the health of the American people, of regular, complete physical examinations of the apparently normal individual, the New Mexico Medical Society believes it essential that the State Federation of Women's Clubs, the Business and Professional Women's Clubs, Parent-Teachers Associations, and other organizations of similar nature, be requested to allot space upon their programs for the consideration of this subject, and that the members of the New Mexico Medical Society assist said organizations, by appearing before them, upon request, and explaining the purposes and methods of this movement, placing especial emphasis upon the experience of the Federal services and the large insurance companies."

Considerable discussion ensued, which resulted in the addition of the following paragraph to the above resolution:

"Be it therefore resolved that the Secretary of the New Mexico Medical Society be instructed to place this matter before the proper officers of these organizations."

Upon motion of Dr. M. K. Wylder (Albuquerque) that the resolution be adopted, seconded by Dr. F. D. Vickers (Deming), and affirmative vote, the secretary was instructed to carry out the provisions of the act.

Dr. G. S. Luckett (Santa Fe), made motion that the Society recommend to its constituent Societies that each member of the constituent Society have himself examined periodically as an example to his community, in connection with the resolution as above set forth.

The motion was seconded by Dr. C. L. McClellan (Clovis) and carried.

Dr. M. K. Wylder (Albuquerque) made motion that a vote of thanks be extended to Dr. H. J. Caldwell (Amarillo, Texas), for his attendance and active part in the meetings, which, after proper second by Dr. H. A. Ingalls (Roswell), was unanimously carried.

Motion to adjourn was entertained at 2:30 p. m.

Immediately upon adjournment the scientific session was called to order by the president and Dr. H. A. Miller (Clovis) gave the report of a case of Sporotrichosis, stating that this was a chronic case of long standing and the only case that he had ever seen or heard of in that part of the country.

The minutes of the meeting of the House of Delegates were read and approved, and the adoption of the various resolutions authorized.

Adjournment sine die at 3:15 p. m.

YUMA COUNTY (Ariz.) MEDICAL SOCIETY

ELLIOTT G. COLBY, Secretary

The Yuma County Medical Society held a meeting on June 1st, at the home of Mrs. Blair, where dinner was served, followed by a business session. The president of the Society is Dr. W. C. Cain, and the Secretary-treasurer is Dr. E. G. Colby.

The Society discussed the plans of the proposed new hospital to be financed by a bond issue of \$75,000. The present building, remodeled about two years ago by the county, has been outgrown, and the proposal is to construct a new building for the patients of the county, as well as the private patients of the staff members.

The Hospital Staff of the Yuma General Hospital was formed, with the following officers:

Dr. Geo. Bryan, Chairman.

Dr. Elliott G. Colby, Secretary.

It was agreed that the staff meetings would be held the first Monday of every month, at which time matters concerning the hospital welfare, as well as scientific reports and discussions will be presented.

It is also planned to hold regular County Society meetings monthly, beginning in September.

With the relations existing between the County Society and the Hospital Staff, it is expected that some very interesting meetings of both these organizations will result.

PERSONAL AND PROFESSIONAL NEWS

DR. W. G. SCHULTZ, of Tucson, has returned to his practice, after a month in the east, where he first attended the American Medical Association in Atlantic City, and afterwards spent some time in special work under the direction of Dr. Hugh Young, at Johns Hopkins.

DR. FRED HOLMES, of Phoenix, has returned to his practice, after attending the National Tuberculosis Association, in Minneapolis, and visiting medical centers of the middle west, including the Mayo Clinic and Battle Creek, Mich.

DR. and MRS. WILLARD SMITH and DR. and MRS. H. B. GUDGEL, of Phoenix, left the last of June for Honolulu, sailing from San Francisco on June 30th. They will be gone two and a half months, returning Sept. 15th.

DR. CHAS. VIVIAN, of Phoenix, returned the middle of June from an eastern tour, beginning with the American Medical Association, where he served as delegate from Arizona. From here he went to New York, spending some weeks in urologic study in that city, then to Montrea. An account of the important meetings he attended and the clinics visited will be found elsewhere in this issue.

EL PASO NEWS

DR. ORVILLE EGBERT has returned to El Paso after taking post-graduate work at the University of Pennsylvania. Dr. Egbert attended the meeting of the American Medical Association at Atlantic City and the meeting of the American College of Physicians and Surgeons at Washington,

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D. C. Upon his return he was greeted by a new-comer in his family, Orville Egbert, Jr.

DR. F. D. GARRETT has returned from New City, where he has been taking special work.

DR. E. W. RHEINHEIMER has returned from Louisville, Ky., where he attended the convention of the Medical Section of the American Life Insurance Convention.

DR. W. E. JOHNSON and family have returned from a vacation in California.

DR. B. F. STEVENS and family have gone to Chicago for a vacation.

DR. J. M. RICHMOND and Mrs. Richmond are now in Europe. Dr. Richmond is taking the Post Graduate Clinic Tour of American Physicians to Canada, British Isles and France. He does not expect to return to El Paso until about September 1st.

DR. S. F. KING and family are taking a month's vacation in California.

DR. J. A. RAWLINGS is spending some time with his family at Mountain Park, New Mexico.

DR. J. H. GAMBRELL has returned from California where he attended the Shriners' convention.

DRS. F. D. GARRETT, C. P. BROWN and C. H. MASON are on a short trip in the Ruidosa.

DR. T. J. McCAMANT is in the Masonic Hospital convalescing from an operation.

MAJ. C. R. HAIG, William Beaumont Hospital, has returned from Philadelphia where he has been doing post-graduate work at the University of Pennsylvania. Maj. Haig attended the meeting of the American Medical Association at Atlantic City.

DR. H. H. STARK has been absent from his office for several weeks on account of illness.

ARIZONA DEACONESS HOSPITAL

The Medical and Surgical Staff of the Arizona Deaconess Hospital met Saturday night at 8:15, April 25, 1925. The chairman was called out just as the meeting started and Dr. Bailey was asked to preside. Those present were: Drs. McCall, Randolph, Thomas, Bannister, Wilkinson, Stroud, McIntyre, Bailey, Slaughter, Mills, Watkins, Couch, C. B. Palmer, Drane, Fattbert, Felch, Vivian, Goodrich, Brown. The reading of the minutes of the last meeting was dispensed with as they are published in Southwestern Medicine.

Dr. Bannister prefaced his discussion saying that he believed that the discussion of deaths was not the most profitable program for our staff meetings. He said as an intern he would spend an hour to an hour and a half on a history, and nearly as long on an examination. A practicing physician has not the time to do this, and many of these cases did not live long enough to be studied carefully.

Case No. 3643 was brought here in extremis. The record is not a good hospital record but is sufficient for the sort of a case. The diagnosis was an incompetent heart, with possibly some abdominal condition. There was a high leucocyte count. The man, however, did not live long enough for his condition to be studied carefully.

No. 3830 was a case with a diagnosis of cardiac asthma. The records are incomplete for the hospital but sufficient for the case. Dr. Bannister said he thought the diagnosis of cardiac asthma should be criticized. Nothing was in the record about the heart or the blood pressure.

No. 3867 had a diagnosis of myocarditis, arteriosclerosis and cerebral edema. The history and physical examination are fairly complete. Dr. Bannister criticized the use of caffeine sodium benzoate in dosage of half a grain; seven grain doses are now being used. He also criticized the use of camphorated oil, saying that the belief now is it does little or no good.

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No. 3784 was a case of acute and chronic parenchymatous nephritis. He lived four days after being in the hospital. The records are fairly complete. There is little to learn by a discussion of the case.

No. 3669 was a case of chronic advanced pulmonary tuberculosis with chronic parenchymatous nephritis which had the capsule of each kidney stripped; after the first decapsulation the patient was some improved. Dr. Bannister said his study of the authorities leads him to think that decapsulation of the kidney for nephritis should be only for acute nephritis. He said he had talked to the surgeon in the case and learned that the operations were not done with the idea of curing the man, but only with the idea of making him more comfortable. The patient desired the operation.

Dr. Stroud said he felt that camphorated oil should be discarded as a stimulant.

Dr. Randolph said his teaching had been that the use of camphorated oil was being discontinued. He said that caffeine sodium benzoate in the large doses would sometimes produce uncomfortable symptoms; two to four grains could be used in all cases. The large doses may be used in but a few.

Dr. Brown said that he had used it in seven and a half grain doses.

Dr. Palmer said he gave two grains of caffeine sodium benzoate to a dying patient and he lived four hours. He thought the drug was good at times.

Dr. Brown on being asked about cardiac asthma said that the heart might contribute materially to asthmatic dyspnea and hence such an asthma might be properly diagnosed cardiac asthma. The dyspnea from a heart is not alone expiratory unless there is an asthma tendency from some other cause, or unless the dyspnea has lasted long and severe enough to seriously disturb the circulation of the bronchial mucosa. Theoretically at least asthma may result from forceful exhalation, long continued, and if the forceful exhalation is due to heart disease,

the asthma might properly be called cardiac. Practically the forceful exhalation, produced ordinarily by the factor that affects the bronchi, converts the otherwise simple dyspnea into an asthmatic, or expiratory, dyspnea; dyspnea from the heart would be simply added to the dyspnea produced by preceding causes.

Dr. Wilkinson reported upon two cases of cancer:

No. 3648 is a case of cancer of the prostate and pulmonary tuberculosis. There was a large tumor in the lower abdomen. The patient lived several days after coming to the hospital. The records were fairly complete. There was an autopsy in the case. The important finding were that there was a double hydronephrosis. The mass proved to be a round cell sarcoma. The treatment was palliative and adequate. No progress records were kept.

No. 3685 was a cancer of the sigmoid. The records are adequate. The chief complaint was excruciating pains in the abdomen. The tumor was large and easily felt. An operation was done which shunted the bowel around the tumor and gave the patient some relief.

Dr. Wilkinson said he believed that diathermy might do cancer patients good as the cancer cell is susceptible to heat. Heat congests the cancer and this is advisable in case x-ray therapy is to be tried. He believed that even cancer patients might be benefitted also by sun baths and the Alpine lamps. Cancer cases which he had treated with sun baths did better than those cases which did not take the sun.

Dr. Watkins said that case No. 3685 had had an exploratory operation a year ago and an inoperable condition was found. She then had deep x-ray therapy and remained comfortable for months. Radium was not used for the reason that entrance into the uterus could not be made. The tumor mass was not affected by the radiation but the comfort the patient obtained warranted the use of the x-ray. Dr. Watkins said they had used intensive treatment in this case. He said that the literature indicated that

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sarcoma required much less dosage of x-ray than carcinoma but that this was wrong. Sarcoma requires larger doses than does carcinoma.

Dr. Vivian said that he had recently seen a case of cancer treated by x-ray which he believed was cured. It is worth while to diagnose and treat these cases early.

Dr. Watkins reported a sarcoma x-rayed several years ago and the patient is still alive.

Six cases of accidental death were discussed by Dr. McIntyre. They each died within 44 hours after entering the hospital. These records are not extensive but probably all that could have been under the circumstances.

No. 3747 had an autopsy. There was a subdural hemorrhage without fracture of the skull. In case No. 3773, the baby was well up to 48 hours of age as far as the records go. The criticism on this record is that nothing was said as to when, where or how the baby was born. The spinal puncture indicated that there was intracranial hemorrhage.

In certain hospitals spinal puncture is being done on all babies immediately after birth. If the pressure is high, the puncture is repeated at intervals and the intracranial pressure is relieved and the babies get well often when it is believed they would not have recovered otherwise.

Dr. Watkins said that in the severe injuries it is usually extremely difficult to get satisfactory x-ray work because the patient cannot cooperate. In one of the cases reported both lungs were collapsed without a fractured rib. Dr. Watkins asked what should be done for a large subdural hemorrhage at the base of the brain? He said some would do a decompression and other would do spinal punctures. The spinal punctures could not draw off a large blood clot.

Dr. Stroud reported one case in which he did a de-

compression on a child and it recovered, even though it had had a forty-minute convulsion and was in extremis. Dr. Stroud said if he himself were found with a serious head injury he would wish to have a decompression. No harm is done by the operation. The patients often are not operated when if they had been operated they might have lived; a man he had seen lately had died, he believed, because he was not able to get consent for a decompression.

Dr. Goodrich said he thought the treatment of skull fractures could be followed along certain definite lines. If they have focal symptoms, it is well to do a decompression. If there is simply a concussion you have no right to do a decompression.

Dr. Brown said he had heard of Dr. Stroud's last case from the first consultant and believed that if the family physician had not opposed a decompression this man's life might have been saved.

Dr. Mills said he was thinking of the indications for spinal punctures in case of cerebral hemorrhage; the advantage is that the cerebral pressure is relieved. It does not, however, remove the extravasated blood. Frequent spinal punctures seem to help some of the cases to get well.

Dr. Bailey reported one case of his experience in which double decompression was done; following the second operation the patient made an uneventful recovery.

Dr. Felch said if there are definite focal symptoms, a decompression should be done. Usually if there are not focal symptoms at once, there is plenty of time to do a decompression at a later date if symptoms arise which would warrant the operation.

The time being up the meeting adjourned.

Orville Harry Brown, Sec'y.

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ANNUAL REPRINT OF THE REPORTS OF THE
COUNCIL OF PHARMACY AND CHEMISTRY
OF THE AMERICAN MEDICAL
ASSOCIATION FOR 1924

Cloth. Price, postpaid, \$1.00. Pp. 82. Chicago:
American Medical Association, 1925.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1924. Some of these reports have appeared in The Journal of the American Medical Association. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked on as the companion volumes to New and Nonofficial Remedies. While the latter contains the medicinal preparations that are found acceptable, the reports contain the reasons why certain products were not accepted. Thus the present volume contains reports on the following products which the Council denied admission to New and Nonofficial Remedies: Aolan; Aspatol; Atussin, Peptoproteasi, Paraganglina Vassale, Fosfoplasmina, Asmoganglina and Endo-Ovarina Tablets; Borosodine; Carsinol; Colodine and Colobromidine; Ferrasin; Glyeuthymenol. Hoyt's Gluten Flakes; Iodeol; Loefflund's Food Maltose; Mistura Creosote Comp. (Killgore's) and Tablets Cascara Comp. (Killgore's); Neo-Riodine; Nicomors; Peptone Solution for Hypodermatic Use (Armour); Pixalbol; "P-O-4"; Pollantin; Promonta. Pruritus Vaccine Treatment-Lederle (Montague Method); Restor-Vin; Some "Mixed" Vaccines of G. H. Sherman and Tersul Hiller.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1925 edition because they were found ineligible for further recognition. Among these are polyvalent antipneumococcic serum, colon bacillus vaccine, gonococcus serum and gonococcus vaccine.

The volume contains a number of reports of a general nature: for instance a report on the therapeutic value of benzyl benzoate; a report on anaphylaxis produced by thromboplastic substances and a report on the therapeutic use of digitalis.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

BOOK REVIEWS

MANAGEMENT OF THE SICK INFANT.—By Langly Porter, B. S., M. D., M. R. C. S. (Eng.) L. R. C. P. (Lond.), Professor Clinical Pediatrics, University of California Medical School; Visiting Physician, San Francisco Children's Hospital, etc.; and William E. Carter, M. D., Assistant in Pediatrics and Chief of Out Patient Department, Univ. of Calif. Med. School, San Francisco. Second Revised Ed., C. V. Mosby Co., St. Louis, Mo., 659 pp., price \$8.50.

The object of this book is to deal with the management of the peculiar symptoms of disease as it occurs in infants. The human infant presents many peculiarities of function and structure, so that management of sickness in it calls for many departures from the ordinary methods of treatment appropriate for older patients.

Part I considers the causes and management of the common symptoms, such as vomiting, diarrhea, constipation, variations in nutrition, hemorrhage, pain and tenderness, and convulsions, syncope, fever, cough, and prematurity.

Part II considers the peculiarities of the various systems, as respiratory tract, digestive tract, heart and circulation, blood and lymph system, nervous system, skin, genito-urinary tract, osseous system, internal secretions, and infectious diseases. The



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peculiarities of each system as manifested in the infant are discussed and the management of the symptoms presented when the various systems are affected.

Part III details numerous methods of applying and administering treatment to infants. This section has numerous illustrations and is particularly valuable; for example, the various methods of administering intravenous medication to infants. The final chapters on Formulas and Recipes, Drugs and Poisoning, also deal with the peculiarities in infants.

The arrangement of material is excellent and the whole text represents a very valuable presentation of the subject for the general practitioner.

MODERN METHODS OF TREATMENT.—By Logan Clendening, M. D., Assistant Professor of Medicine, Medical Department of the University of Kansas, Attending Physician of Various Hospitals, Kansas City. Chapters on Special Subjects by Various Authors. Published by C. V. Mosby Co., St. Louis. 692 pp., price \$9.00.

This book aims to present "a comprehensive system of the best modern thought and practice" upon the treatment of internal diseases. It is pre-eminently a treatise on the methods of therapeutics.

Part I deals with the general methods used in treatment, such as rest, drugs, biologics, extracts of ductless glands, diet, heat, cold and hydrotherapy, gymnastics and massage (Richter), exercise and electrotherapeutics, radiotherapy (Skinner and DeWeese), climate and aerotherapy, psychotherapy, miscellaneous (such as blood transfusions, spinal puncture, pneumothorax, lavage, etc.)

In Part II, the application of these special procedures to the various groups of internal diseases is taken up, such as infectious diseases, allergy,

metabolism, blood, cardiovascular, respiratory, kidney, digestive, ductless glands.

The arrangement of the book is good and the descriptions brief but sufficiently detailed to give all the necessary information to the general practitioner.

GERIATRICS.—By Malford W. Thewlis, M.D., Editor Medical Review of Reviews, Second Edition, C. V. Mosby Co., St. Louis, 400 pp. price \$4.50.

The senile organism requires special study. There is a senile physiologic entity and the effect of disease upon the senile organism is different from the effect upon the normal adult organism. This effect must be understood and managed according to indications.

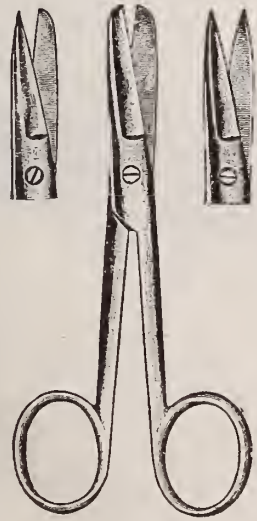
The earlier chapters discuss the general care of the aged; then several chapters discuss the manifestations of various diseases in the senile; such as constipation, toxemia, blood pressure, arteriosclerosis, heart disease, nephritis, diabetes, rheumatism, asthma, bronchitis, pneumonia, gangrene, chorea, pruritus, prostatic hypertrophy.

Later chapters deal with special application of therapeutics in the aged, with final chapters on surgery in the aged.

This is a valuable work on a somewhat neglected subject. The general practitioner is usually more at sea when dealing with the aged than when dealing with that other difficult age,—infancy.

A MANUAL OF OBSTETRICS. (Second Edition.) by John Cooke Hirst, M. D., Associate in Gynecology in the Graduate School of Medicine, University of Pennsylvania; Associate in Obstetrics, School of Medicine, University of Pennsylvania. Entirely reset. The work contains 551 pages with 229 illustrations. Philadelphia and London. W. B. Saunders Company, 1924. Cloth, \$4.50.

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The author has made free use of the cuts from several of the standard texts on obstetrics and in particular, he has drawn from De Lee, Bumm, Dorland and Crossen. The illustrations are not especially clear or sharply brought out. However, the selection of the prints are well chosen to illustrate the subjects under discussion.

Dr. Hirst's work is well condensed and useful for a quick reference and is in the main only a manual. The work recommends itself to the average student by the easy access to the various topics. Completeness and exhaustive discussions must be sought elsewhere. The teachings are sound and conservative. This little volume will find a useful place on the shelves of all who practice obstetrics.

PRACTICE OF PEDIATRICS, by Charles G. Kerley, M. D., formerly professor of Diseases of Children, New York Polyclinic Medical School and Hospital, and Gaylord W. Graves, M. D., Associate in Diseases of Children in the College of Physicians and Surgeons, New York City. Third Edition, revised and reset. Octavo of 922 pages, 150 illustrations. W. B. Saunders Company, 1924. Cloth \$9.00 net.

This valuable work has been revised with the thoroughness of the authors' previous attempts. Of the rapid advancement that is being made in the various branches of the clinical and the purely scientific medical work, Dr. Kerley's book has taken due notice. It is impossible to enumerate all the revisions but so far as it is possible the work is thoroughly up to date. Dr. Kerley has given us in all his productions, practical clinical texts which are the digests of careful observation and practice. Undoubtedly this work is of more value to the average physician than most of the current texts.

The editing of the book is a creditable piece of work. We cannot too strongly recommend this book to the profession.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. Gleason, M. D., Professor of Otology in the Medico-Chirurgical College Graduate School, University of Pennsylvania. Fifth Edition, thoroughly revised, 12 mo. of 660 pages, 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$4.00 net.

This book covers the subjects very well and the anatomy, physiology and pathology have been more fully considered than is usual in a work of this kind. The author stresses the importance of careful examination and explains various methods so clearly that there is no danger of confusion, in fact the author makes himself understood at all times. The operations are carefully described and reasons for surgical interference given. The formulas are good and the detailed description of the action of the various drugs and the proper methods of using them is rather unusual and should be of benefit to the general practitioner and specialist alike.

NEW AND NONOFFICIAL REMEDIES, 1925, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan.

1, 1925. Cloth. Price, postpaid, \$1.50. Pp. 461+XL. Chicago: American Medical Association, 1925.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually provides the American medical profession with disinterested critical information about the proprietary medicines which are offered to the profession and which the Council deems worthy of recognition. The book also contains descriptions of nonproprietary medicines which the Council considers worthy of consideration.

Physicians cannot dispense with the newer remedies that are being brought out, yet they can neither judge them on the basis of the manufacturers' claims nor have they the opportunity or time to determine their merits. For this reason every physician should possess a copy of the annual volume of New and Nonofficial Remedies which the Council on Pharmacy and Chemistry puts at his disposal.

DISEASES OF THE HEART. By Dr. Henri Vaquez, Professor of the Faculty of Medicine of Paris; Translated and edited by George F. Laidlaw, M. D., Associate Physician to the Fifth Avenue Hospital, New York City; Introduction by William S. Thayer, M. D., Johns Hopkins Hospital, Baltimore, Md. Octavo volume of 743 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$8.50 net.

Vaquez on Diseases of the Heart is the best book that has come to our notice. One generally finds a satisfactory answer in Vaquez to any circulatory problem encountered in daily practice.

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The mystery about heart disease is very rapidly being dispelled and today it is one of the best understood of all the organs of the body. However, much still lies in the field of empiricism, and here the vast experience and careful observations of the author are particularly valuable. Nearly every chapter is a classic. Everything worth while is included. Vague theories and doubtful speculations are not even mentioned. The electrocardiograph is very conservatively discussed in a short chapter. While recognizing its use in certain phases of cardiac diagnosis, its limitations are also made very plain. The chapter on cardiac infarct is hardly up to date. Nothing is said of the treatment of this very important condition. The use of quinidine in auricular fibrillation does not inspire the author with much enthusiasm. There is an excellent chapter on cardiac traumatism, also on the operative treatment of ad-

hesive pericarditis and related conditions.

We repeat, Vaquez is the best monograph on the diseases of the heart.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

The American Electrotherapeutic Association will hold its 35th Annual Session September 15th to 18th at the Hotel Drake, Chicago, Ill. Papers will be read by the leading men in the field of physical therapeutics and by invited guests of national reputation. A demonstration of actual technic of application of the various physical modalities will be given. There will be a complete exhibit of the latest electrotherapeutic apparatus and accessories. All legally licensed physicians are welcome and detailed program can be obtained by addressing Dr. Richard Kovacs, Secretary, 223 East 68th Street, New York City.

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3. If the dog is unknown.
4. If the dog is living and after observation for ten days develops rabies, dies under suspicious circumstances, or is sick.

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SOUTHWESTERN MEDICINE

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No. 8

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NEW MEXICO MEDICAL SOCIETY
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
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SYMPOSIUM ON INDUSTRIAL MEDICINE AND SURGERY

AN ANALYSIS OF FORTY-EIGHT CASES OF PELVIC FRACTURE

WM. B. WATTS, M. D.
Miami-Inspiration Hospital,
MIAMI, ARIZONA

At a joint meeting of the Medical and Surgical Association of the Southwest and the Pacific Coast Roentgen Ray Society, held at Phoenix, Dec. 1-3, 1921, Dr. John E. Bacon presented a paper on "Fractures of the Pelvis, Comments on Complications, Mortality, and Ultimate Results," reporting at that time a total of thirty-two cases of pelvic fractures. This article, with case histories, was published in *Southwestern Medicine* (Vol. VI, No. 1, Jan., 1922). Since Dec. 1, 1921, we have treated at the Miami-Inspiration Hospital sixteen additional cases of fractured pelvis, bringing the total number of cases in this series up to forty-eight.

It is the author's purpose to present an analysis of these forty-eight cases with further comments on complications, treatment, mortality, and final results.

Etiology.—Without exception the fractures in the forty-eight cases here reported were the result of direct violence in some form; (1) by caving ground, where the man was usually covered by loose rock, fifteen; (2) by being crushed between mine cars, eight; (3) by falls from a height, seven; (4) automobile accidents where the victim was pinned beneath the overturned car, four; (5) caught and squeezed between mine car and drift wall, three; (6) struck by a mine motor, three; (7) by falling astride grizzly rail, three; (8) crushed beneath wheels of mine car, one; (9) struck by falling telephone pole, one; (10) due to gunshot wound, one; (11) attacked by an infuriated bull, one; (12) hit by heavy truck, one.

Diagnosis.—Since the advent of the Potter-Bucky diaphragm, Coolidge tubes, improved intensifying screens, and high voltage transformers there is hardly an excuse for overlooking a fracture of the pelvis, and in all pelvic injuries an x-ray investigation is absolutely imperative.

For the diagnosis of complicating injuries of the viscera and soft parts we must rely upon a very careful physical examination. These latter can usually be determined very readily if a systematic search is made.

Complications.—The complications encountered in this series were as follows: (1) Sacro-iliac disturbance occurred in seven of the cases, or in 14.58% of the series; (2) rupture of the urethra in seven cases or 14.58%; (3) rupture of the bladder in three cases or 6.25%; (4) rectal tear in two cases or 4.17%; (5) sciatic neuritis in one case, or 2.08%.

Of the complications, the sacro-iliac lesions were responsible for the longest period of disability. The average in five cases was two hundred and fifty-three days; one patient (No. 10) suffered a partial permanent disability, complaining of a weak back two years from the time of injury. There is one patient still under treatment and the estimated period of disability in his case is six months. We believe that the pain in these cases is due to tearing or stretching of the sacro-iliac ligaments; minute hemorrhages with resulting adhesions play a part in the production of the pain, and in certain cases contusion to the joint itself at the time of the pelvic frac-

*Read before the Thirty-Fourth Annual Meeting of the Arizona State Medical Association, held at Bisbee, Arizona, May 16 to 18, 1925.

ture. In only two cases (Nos. 35 and 39) were we ever able to demonstrate an actual rotation and separation of the sacro-iliac synchondrosis, and in the one (No. 35) where we found this condition most pronounced, the patient did not at any time complain of sacro-iliac pain.

Rupture of the urethra did not prove to be a very troublesome complication, not materially interfering with recovery nor unduly prolonging the period of disability. The average loss of time from work in six cases was one hundred and twenty-eight days. In the seventh case (No. 1) there was a partial permanent disability due to other causes, so that his case can not fairly be considered under this heading.

In the three cases (Nos. 1, 16 and 48) of ruptured bladder the patients died within one to five hours from the time they were admitted to the hospital. The fatal termination was the result of concomitant injuries, hemorrhage and shock.

The two cases (Nos. 1 and 35) of rectal tear made complete recoveries with perfect restoration of function of anal sphincters. The prolonged period of disability in these cases was due to the coincident injuries and other complications.

The case (No. 24) complicated by sciatic neuritis proved quite troublesome, but eventuated in recovery after a period of six months.

Concomitant Injuries.—In nine cases of this series (Nos. 4, 7, 16, 19, 23, 27, 30, 33 and 48) the coincident injuries constituted the major lesions, and were responsible for the prolonged disability in the five non-fatal cases. In these cases the period of disability averaged two hundred and ninety-five days. Included under this heading are only those cases where there was no question as to the injury productive of the disability. Where there was doubt, the disability has been charged to the pelvic fracture and complications.

Mortality.—The mortality was 12.5%, death occurring in six cases (Nos. 6, 7, 16, 18, 26 and 48) of this series. In all of these cases death resulted from either the concomitant injuries, or the extensive complicating injuries.

Ultimate Results.—Excepting the fatalities, in all but two cases (Nos. 1 and 19) of this series, there was perfect restoration of function. One of the patients (Case No. 1) has a slight limp, but is able to pursue a gainful occupation, so the permanent disability in his case is a negligible quantity. In the other (No. 10) there is a permanent weak back, which is unquestionably a handicap for hard labor. The average to-

tal disability period in thirty-eight cases of this series was one hundred and forty days. There is one patient (No. 46) under treatment and the period of disability in his case is estimated as one hundred and eighty days. The contrast is rather interesting when we compare the period of disability of cases where no compensation is expected with those where compensation is expected. In six cases (Nos. 28, 34, 37, 38, 42 and 45) without prospects of compensation, the period of disability averaged seventy-five days. Where compensation was expected the disability period, in thirty-one cases, averaged one hundred and seventy-three days, or was 2.3 times as long as in those where there was no liability.

Treatment.—The treatment in these cases resolved itself into: (1) Treatment of the fracture; and (2) treatment of complications or visceral lesions. Open reduction was not considered necessary in any case of this series. Where there was extensive comminution, the patient was placed on a Bradford frame, the pelvis moulded by means of broad strips of adhesive plaster, and where indicated a Buck's extension was applied with an average weight of twelve pounds. In the simpler fractures the patient was allowed about on crutches but not permitted to put weight on the leg of the injured side until three or four weeks had elapsed. In those cases of sacro-iliac involvement, the patient was usually anesthetized, the joint manipulated, and a body cast of plaster of paris extending from the ensiform cartilage to well down over the sacro-iliac synchondroses applied. The cast was continued as a spica on the affected side and incorporated the thigh as far as the lower third.

In cases where the urethra was ruptured, the location was determined, perineal incision made over the ruptured portion and the torn ends searched out. These were sutured over a catheter and the catheter allowed to remain in place for a period of ten days or more, depending on the amount of time required for healing of the perineal wound. In the two cases of rectal tear, an anatomical restoration of the torn sphincters was attained.

CONCLUSIONS

1. Pelvic fractures are not infrequent in mine and automobile accidents, and a careful x-ray examination should be made in all injuries of the pelvis.
2. The simpler fractures of the pelvis are usually not serious injuries and should not require a disability period in excess of ten to twelve weeks.
3. Complicated fractures of the pelvis

are always serious and require proper treatment of the complicating lesions. The period of disability in these cases is dependent upon the nature and extent of complications, and is usually from four to six months.

4. In industrial cases where compensation is expected the period of disability is always increased.

CASE HISTORIES.

Case No. 33. G. M. Mexican, timber helper, aged 25, injured at 1:30 p. m. Sept. 23, 1921, by caving ground from roof of drift; brought in to hospital twenty minutes later.

Physical examination reveals multiple contusions and abrasions over posterior chest, both lumbar regions, pelvis, both eyes and both legs. Patient was in profound shock. X-ray examination disclosed oblique fracture lower fourth of left fibula, comminuted fracture involving lower two-fifths of right femur and a fracture of ramus of right ischium.

Discharged from the hospital Dec. 21, 1921, on crutches. Released for work and compensation adjusted March 22, 1922. The period of disability in this case was not the result of the pelvic fracture but due to the complicating fractures of fibula and femur. As a matter of fact at no time did the patient complain a great deal of the fracture of his pelvis.

Case No. 34. S. S. M., American, rancher, aged fifty-six, injured April 27, 1922, when he was attacked by an enraged bull. On July 27, 1922, the patient was referred to me for examination and consultation.

Physical examination revealed a discharging sinistral tract of left buttock, the tract apparently leading to tuberosity of left ischium. X-ray showed a fracture of the body and ramus of left ischium—with necrosis of entire bony fragment.

Removal of the dead bone was recommended, this was done and the patient left the hospital three weeks later. At the end of six weeks from the date of operation the wound had completely healed. The period of disability continued until Oct. 1, 1922.

Had this case been x-rayed at the time of injury, the treatment unquestionably would have been different, and instead of a period of almost six months disability, he probably could have returned to his work within three months.

Case No. 35. Fred G., American, motor helper, aged 22, injured at 11:00 p. m., July 21, 1922, by having several ore cars run over him. Brought to hospital immediately after accident occurred.

Physical examination revealed jagged laceration of rectum and laceration of left side of perineum. Astragalo-calcaneal dislocation of right foot, fracture of lower third of left fibula and confusion and abrasion over left side of pelvis. X-ray examination disclosed a spiral fracture of lower third of left fibula. Incomplete fracture posterior to lip of lower end of left tibia and forward dislocation of left astragalus. Right foot; anterior dislocation of astragalus, astragalus wedged diagonally in tibio-fibular mortise. Dislocation at cuboidocalcaneal and astragalo-cuboid articulations. The cuboid and scaphoid were displaced inward, and astragalus forward and outward. Rupture of tibio-fibular, lateral external and lateral-internal ligaments with avulsion of several fragments from scaphoid borders. Lumbar spine; fracture of right transverse process of fourth lumbar vertebra and a sacralized fifth lumbar vertebra. Fracture of right wing of sacrum and subluxated left sacro-iliac synchondrosis. Marked separation of symphysis pubis

with avulsion of small fragments from descending rami of pubic bones and one-half inch outward displacement of left pubis.

Discharged from hospital Oct. 18, 1922. Compensation adjusted 240 days from date of injury.

Case No. 36. L. M. S., American, painter, aged 56, injured at 10:15 a. m. Sept. 5, 1922, by fall from scaffold suspended forty feet above the ground. Brought to the hospital immediately after the accident occurred.

Physical examination revealed contusion of right parietal region of skull with three-inch laceration of scalp. Fracture mid third of right clavicle with large hematoma overlying. Comminuted fracture of right ilium with large hematoma. Patient unconscious at time of examination and in severe shock. X-ray examination showed a comminuted fracture of mid third of right clavicle and comminuted fracture of the right ilium with multiple loose fragments of wing with telescoping and downward displacement of fragments. One small fragment depressed and in edgewise position. The progress to recovery was uninterrupted, and patient was up and walking without crutches on Oct. 7, 1922.

Discharged from the hospital on Oct. 25, 1922. Released for work and compensation settled Dec. 1, 1922. The period of disability in this case was due to the fractured clavicle rather than the pelvic fracture.

Case No. 37. Sra. A. L., Mexican, housewife, aged forty-six, injured by being overturned in an automobile on May 10, 1923. Came to the hospital for examination on May 16, 1923, complaining of pain in the right perineal region when she walked, and especially when pivoting on right leg.

X-ray examination revealed a fracture through the upper portion of body of the right os pubis, and another of the descending ramus. There was slight displacement downward of the body of the os pubis and the attached portion of the descending ramus.

The patient refused to go to bed and insisted on doing most of her housework.

Case No. 38. M. M., Mexican girl, aged six years, was struck by an automobile at 12:30 p. m., July 25, 1923. Was brought to the hospital 1:00 p. m. same day.

Physical examination revealed contusion over sacrum contusion and large hematoma over front of pelvis, and laceration of vagina. X-ray examination showed fracture of horizontal and descending rami of right pubic bone. There was practically no displacement of fragment.

Recovery was uninterrupted. Patient discharged from the hospital Aug. 4, 1923, and ten days later when the doctor called at her home, he found the patient in the yard running and playing with other children.

Case No. 39. D. R., Mexican, mucker, aged 21, injured at 10:30 a. m. on Aug. 1, 1923, by having rocks slough from roof of drift. Brought to hospital thirty minutes later.

Physical examination revealed bilateral contusion over posterior chest wall and lumbar region, bilateral contusion to anterior and posterior surfaces of pelvis with large hematoma over right lateral pelvis region and entire anterior pelvic region. X-ray findings; comminuted fracture of left side of pelvis involving body, horizontal and descending rami of os pubis and tuberosity of left ischium. Loose fragments are displaced downward and backward. Irregular oblique fracture beginning at crest of right ilium and extending down to sacroiliac notch, one small loose fragment between main fragments. Considerable separation of main fragments and some upward riding of right side of pelvis. Fracture through horizontal and

descending rami of right os pubis. Loose fragment is displaced downward.

Progress in this case was uninterrupted and about fifteen days after admission to the hospital I happened to catch patient sitting upright in bed as I passed the ward. I scolded him for his indiscretion and he assured me that sitting up caused him no discomfort and emphasized his statement by demonstrating that striking himself over his pelvis with his fist caused him no pain. Notwithstanding this fact, patient was kept in hospital until Oct. 12, 1923, at which time he was discharged.

His compensation was adjusted on Oct. 30, 1923. He left the district for a period of three or four months. Since his return he has pursued his occupation as mucker without loss of time. I have had him in for the purpose of radiographing his pelvis on three different occasions and each time he has insisted that he was perfectly all right and that his injury had never caused him any discomfort since his discharge from the hospital on Oct. 12, 1923.

Treatment. The patient was placed on a Brädford frame, the pelvis moulded by adhesive plaster and Buck's extension applied.

Case No. 40. V. Q., Mexican, machineman, aged forty-one, was injured at 10:00 p. m., Sept. 10, 1923, by falling astride a grizzly rail. Reported at dispensary for treatment at 11:00 a. m., Sept. 11, 1923. Admitted to the hospital for further examination and treatment on Oct. 4, 1923.

Physical examination revealed a small hematoma of left side of perineum, and a laceration one-half inch long overlying hematoma. X-ray examination was not made until Oct. 4, 1923, and at that time showed a fracture of left side of pelvis at junction of descending ramus of pubic bone and ramus of ischium.

Discharged from the hospital Oct. 22, 1923, and released for work on Nov. 19, 1923.

Case No. 41. J. M. S., American, trainman, aged twenty-four, injured at 7:15 a. m., Nov. 17, 1923, by being caught between compressed air motor and mine car. Was brought to the hospital immediately after accident.

Physical examination revealed a fracture of the right ilium, large hematoma over the anterior superior spine of the right ilium, and a bilateral contusion of the lumbar region. X-ray examination showed a fragment fractured from anterior portion of wing of the right ilium, with forward and downward displacement of the loose fragment.

Patient discharged from the hospital Dec. 8, 1923, walking without the aid of crutches. Released for work and compensation adjusted Dec. 11, 1923.

Case No. 42. J. M., American, bookkeeper, aged 23, injured at 11:00 p. m., July 3, 1924, by being thrown from an automobile. Brought to hospital immediately after accident occurred. Physical examination revealed bilateral contusion of pelvis and contusion and minor abrasions anterior surface upper third of both thighs and contusion over lumbosacral region. X-ray examination showed fracture of horizontal ramus of left pubic bone. Discharged from the hospital on July 7th, returning to his work ten days later, and except for some soreness which persisted for a period of about six weeks all told, the patient did not suffer a great deal of discomfort.

Case No. 43. A. E., Mexican, miner, aged twenty-three, was injured at 6:30 a. m., Sept. 1, 1924, by being caught between compressed air motor and mine car. He was brought to the hospital immediately after the accident occurred.

Physical examination revealed severe contusion

over the sacrum and pubic region, with abrasions and multiple small lacerations over the pubes.

X-ray examination showed avulsion of bony fragment from the medial border of descending rami of both pubic bones and slight separation of symphysis pubis.

Patient discharged from the hospital on Sept. 3, 1924, and returned to his work on Sept. 30, 1924.

Case No. 44. A. C. C., American, surveyor's aid, aged 30, injured Sept. 22, 1924, by having a large rock fall on him. On Oct. 29, 1924, the patient presented himself at the hospital for examination and treatment, stated that he had been under the care of a doctor for the five weeks since his injury and that his improvement had been slow, and he was convinced that he had more than a "wrenched back." He was, and had been using crutches for the past three weeks. Physical examination revealed tenderness to pressure over lumbosacral region and patient complained of some pain when pressure was made over wings of ilia and front of pelvis.

X-ray examination showed fracture of tip of right transverse process of fifth lumbar vertebra and fracture of upper segment of right side of sacrum. Fracture of right ilium involving the acetabulum. There was marked separation of symphysis pubis and the loose fragment of left ilium was displaced backward and downward for more than an inch.

The patient was not admitted to the hospital but referred to a colleague who had him under treatment for a period of about three weeks. At that time patient left the district and was walking with the aid of a cane.

He has not been heard of since. The exact period of disability in this case is unknown. This patient when first seen by me handled himself remarkably well considering the extensive pelvic injury sustained.

Case No. 45. Wm. L., American, miner, aged forty-four, injured at 10:00 a. m., Oct. 23, 1924, by jumping from third floor of a burning building. Admitted to hospital thirty minutes after accident occurred.

Physical examination revealed contusion and large hematoma over left ilium, and we were able to elicit bony crepitus. X-ray examination showed fragment of bone 2.5 by 7 cm., fractured from the anterior superior portion of left ilium, and displaced downward 3 cm.

Patient discharged from hospital Dec. 17, 1924, walking, and did not report for further treatment.

Case No. 46. W. S., English, motor helper, aged 28, injured at 3:30 a. m. on Dec. 3, 1924, by being caught and rolled between ore train and drift timber. Admitted to hospital at 4:00 a. m., Dec. 4, 1924.

Physical examination revealed contusion of lumbosacral region with large hematoma over sacrum, contusion and abrasion over anterior surface of pelvis and lateral external surface of upper third of right thigh. X-ray examination showed bilateral fracture of pelvis at junction of descending ramus of os pubis, and ascending ramus of ischium. Patient was discharged from the hospital on Dec. 24, 1924, on crutches. He had never complained of any discomfort from his pelvic fractures up to the time of his discharge, but always of pain in left sacro-iliac region. Readmitted to hospital on January 10, 1925, complaining of pain and tenderness of perineal region and stated that the pain in his back had never subsided. Physical examination at this time revealed tender callus at site of fractures of pelvis which was increased and muscular tug in walking. On Jan. 26, 1925, he was discharged markedly improved as to pain in perineal region and the pain in back was some-

what improved. He has been under constant supervision and treatment in the mechanotherapy department since he was discharged from the hospital the second time, but the pain in his left sacro-iliac region has gradually increased and we deemed it wise to have him return to the hospital on March 22, 1925, at which time he was anesthetized and both sacro-iliac joints manipulated. A body and left spica plaster cast was applied. Five days later the patient no longer complained of pain in his back and to date he is apparently absolutely free of all pain in his back. He has had no pain or discomfort from the fractures of his pelvis for about a month. We will have him continue to wear the plaster of paris jacket until about the first of May. At that time we hope to find, after removal, that he is completely free of the sacro-iliac complication which has unquestionably produced the major part of his disability and we estimate that by the first of June he will be fully recovered and perfectly able to perform his usual duties.

Note: This case is further complicated by epileptic seizures, and after each attack the sacro-iliac pain was more pronounced.

Case No. 47. B. C., Mexican, machineman, aged twenty-four, squeezed between moving ore car

and post at 9:45 p. m., Jan. 1, 1925. Treated at the dispensary from Jan. 2, 1925, to Jan. 12, 1925, at which time he was sent to the hospital for x-ray investigation.

Physical examination revealed an abrasion of anterior surface, upper third of right thigh and contusion of left groin. X-ray examination showed a fracture of descending ramus of left pubis.

Patient was admitted to the hospital Jan. 12, 1925, and discharged Jan. 17, 1925, without crutches. Returned to work on Feb. 23, 1925.

Case No. 48. J. A., Mexican, machineman, aged forty, was injured at 8:35 a. m., April 2, 1925, by being crushed between derailed ore car and post. Brought to the hospital immediately.

Physical examination: Patient was unconscious and in profound shock. There was bleeding from both ears and mouth. A long, deep, jagged laceration of left groin from which there was severe hemorrhage. Crushing injury of left chest with multiple fractures of ribs. Large hematoma over anterior pelvis with bony crepitus. Evisceration of both testicles. X-ray examination revealed comminuted fractures of both rami of both pubic bones.

Patient died about one and one-half hours after admission to the hospital.

LUNG CONDITIONS FOUND IN OUR INDUSTRIAL WORK OTHER THAN TUBERCULOSIS AND SILICOSIS

NELSON C. BLEDSOE, M. D.
Chief Surgeon Calumet & Arizona Hospital,
BISBEE, ARIZONA

Strange as it may seem we do not find as many lung conditions in our copper miners as the average general practitioner would imagine. With the advent of x-ray examination of the chest we have been struck with the increasing number of chest tumors found. The number of pulmonary tumors recorded in the newer clinical statistics is due to greater accuracy in diagnosis by means of x-ray. Necropsy reports from the large centers show an increase of pulmonary cancers. The cause of such tumors of the lung is not better known than that of cancer in any other part of the body.

Malignant tumors of the lung may occur at any age; up to middle life the tumor is usually sacomatous in nature; the younger the subject the more certain is this true; beyond middle life, it may be sarcomatous or carcinomatous, usually the latter.

Primary malignant growths affecting the organs of the thorax occur more frequently in males than females. Secondary growths in the lungs are more frequently encountered among females. Primary cancer of the lungs has been looked upon as a rare condition, yet statistics are gradually proving that this belief is not well founded. Sailer and Torrey show that it occurs 156

times in 100,000 deaths. Ewing says that of deaths from cancer, about one percent are found in the lung.

Benign tumors occurring in the lungs or bronchi are quite rare, a tumor involving these structures being usually malignant. Primary tumors may occur as a single large tumor springing from the hilum of the lung and extending into lung tissue, or there may be a number of small nodules varying in size from a nut to an orange.

Carcinomatous growths are white, grayish white, or grayish yellow in color and are of firm consistency. A pleural effusion is not uncommon especially when the pleura is involved. Effusions which arise as a result of malignant disease not only have a tendency to recur after removal but are prone to be hemorrhagic in character; this feature is always suggestive of malignancy.

The symptoms may be insidious, with gradual failure of health or they may occur more acutely with severe dyspnea, cough, expectoration and pain. The dyspnea, one of the earliest and most common symptoms, may be out of all proportion to the size of the lesion; cyanosis is present under these conditions. The cause of the dyspnea and cyanosis is not well understood. Dyspnea may be caused by pressure on the trachea, large bronchi, nerve

*Read before the Thirty-Fourth Annual Meeting of the Arizona State Medical Association, held at Bisbee, Arizona, May 16 to 18, 1925.

trunks, or a large pleural effusion. Difficulty of breathing may be constant or paroxysmal; occasionally severe enough to be termed orthopnea. Cough is invariably a symptom and it varies greatly in character and severity. Expectoration may be scanty, mucoid, mucopurulent, blood streaked or hemorrhagic. Occasionally the blood expectorated resembles currant jelly which is highly suggestive of malignancy. Pain may be the first symptom and usually indicates that the pleura is involved and may be constant or paroxysmal.

Constitutional symptoms are the same as that of cancer in other parts of the body. Death occurs in from three and one-half months to twenty-seven. Rapid loss of weight and strength, night sweats, irregular fever, anemia, malaise and digestive disturbances are common.

The diagnosis of malignant growths in the lung is not an easy matter in the earlier stages, for the symptoms that arise from its presence are encountered in the more common thoracic affections, but a careful history of clinical findings and the x-ray make the diagnosis fairly certain.

During the past two years it has been our misfortune in this district to discover several of these cases. One was post influenza. One case coughed up tumor tissue. Physical signs at times are very confusing. Central tumors almost hide themselves from inspection, percussion or auscultation. Unfortunately those tumors that occur on the periphery do not give any signs of their presence until it is too late to operate. Those occurring near the hilum, the location of which makes them inoperable from the start, are often diagnosed clinically. All of our cases observed were inoperable. Physical signs and x-ray ran parallel with each other.

CASE 1

J. C. F. Miner, age fifty; worked all the life as a miner. Chief complaint on entering hospital was difficulty in breathing. Cough was harsh, rasping with considerable purulent expectoration. A typical case of asthma. Condition of lung tumor was unrecognized. He died five days after entering hospital.

Post Mortem—upper right lung was a large whitish mass, firm to touch. Glands in mediastinum were enlarged and closely connected to mass.

Pathological Report—Carcinoma of the lung.

CASE 2

John G. Miner, age sixty-one, single, duration of symptoms three months. Chief complaint incessant cough. Paroxysmal dyspnea and cyanosis. Physical signs were negative. No temperature, pulse from eighty to eighty-six.

Post Mortem—Multiple small nodules in lung.

Diagnosis—Cancer of the lung.

CASE 3

Grant W. Carpenter, age fifty. Past history negative with the exception of diphtheria when he was twenty years old. Denies any venereal

disease. Present trouble began about one month before he entered the hospital with a swelling in the right side of his neck, worse at night when he would lie down. He was unable to sleep. He was coughing, short of breath, with husky voice, said it had been so since he had the diphtheria. The least exertion causes him to be short of breath and cyanotic, getting progressively worse. He occasionally raises a little whitish slimy sputum. He has no pain whatever. He was a well nourished man of 168 pounds; veins of chest, face and neck are dilated as if suffused with blood, no marked swelling anywhere. Heart O. K. Right lung above fourth rib anteriorly dull to flat on percussion, no rales, breath sounds absent over this area. Urine 1028, acid, heavy trace of albumin; hyaline and fine granular casts, pus cells. Hemoglobin, 75%; RBC, 3,700,000; WBC, 22,750; PMN, 89; SL 8; Trans, 10; Eos, 1. Wassermann negative. X-ray shows a shadow in the upper right lung; some enlargement of the aorta.

Diagnosis—Cancer of the lung.

He was taken to Baltimore where he died just four months after he noticed the first symptom.

CASE 4

Dummond, G. Miner, age forty-two, married. Personal history negative save for an operation for hemorrhoids fifteen years ago; denies any venereal disease. Three months before entering the hospital his trouble began with rheumatic pains in the shoulders and chest. No involvement of the joints, no great increase of pain on deep breathing. Had a tight band-like feeling of pressure around the chest. Lost weight rapidly, twenty-seven pounds in five weeks. Strength failed rapidly. Developed a cough with considerable frothy expectoration; has had hot flashes and some night sweats. Has had no fever. Diagnosis of neuritis made in Colorado and advised to seek a warmer winter climate. Had all of his teeth extracted for extensive pyorrhoëa. Since coming to Bisbee voice has become very husky, very much like that of a laryngeal tuberculosis. Physical examination shows a fairly well nourished anemic man. Slight dyspnea and a suggestion of cyanosis in the skin and lips. Eyes are clear, reflexes normal, the voice only a hoarse whisper. The upper and sternal portions of the chest have a solid, almost bulging look. Many small varicose veins about the lower part of the chest, more abundant on the left side. Slight edema of the chest wall, none of the extremities. No perceptible excursion of the left intercostals on respiration. The cervical glands on the right and the axillary on the left are enlarged and palpable. The apex beat cannot be seen nor felt. Dullness extends from one inch to the right of the sternum over to the axillary line on the left for the full length of the sternum. Percussion over the sternum is flat to the sternal notch. The base of the left lung is flat, both anteriorly and posteriorly, and the dullness in the back extends to above the midscapular region. It is impossible to outline the heart. No rales; breath sounds are faint and indistinct and fremitus is absent. Heart tones are muffled in all areas, no murmurs or thrills, pulse equal at both wrists, all signs of an effusion present. Abdomen and extremities negative.

Laboratory findings: Urine negative; sputum no T. B.; Wassermann negative; RBC, 2,900,000; HB, 50%; WBC, 11,000; PMN, 94%; lymph, 6%. X-ray shows a complete obliteration of the left lung by shadow. Chest aspirated and 2200 cc. of a clear sterile fluid obtained. This gave the patient no relief in breathing nor did it improve the circulation. The dullness at the left base anteriorly and posteriorly disappeared and in the axillary region was greatly improved. Dullness

to the right of the sternum and in upper sternal region persisted and continued to the anterior axillary line on the left.

Diagnosis: Mediastinal tumor and tumor of the lung.

Unfortunately for the benefit of science he was taken to Denver, where he died in a very few days.

CASE 5

W. B. H. Age fifty-seven, miner. History of typhoid and malaria; denies any venereal history. Had an attack of flu in 1924, early part of year. Following the flu has never regained his former strength; becomes exhausted on least exertion. Coughs constantly with some pain on left side. Examination: A well-nourished man, 5 ft. 7½ in. tall, weight 150 pounds. As our interest in the case is its lung aspect we will confine our examination to the thorax. Apparently no differences in excursion of both sides. Percussion right lung normal; left showed dullness from third to eighth ribs in the mid-axillary region. The outline of the heart on the left side could not be clearly defined. It extended to the right of the sternum. The apex in the fifth interspace two inches from the midsternal line. In the upper left lobe there was broncho-vesicular breathing. Left lower showed broncho-vesicular to bronchial; no rales. X-ray showed shadow in left lung, continuous with the heart and extending outward to axillary region. Heart pushed over to right of sternum.

Diagnosis—Cancer of the lung.

This case was not diagnosed early as it was taken for granted the extreme weakness and cough were sequellae of the flu. Consequently x-ray was not taken, "a sin of omission." This case is absolutely inoperable and the only hope for any relief is from deep x-ray therapy, which I believe will be of no help to him. There was very little loss of weight from August 22, 1924, to January 1, 1925.

CASE 6

C. O. J. Male, age 44. His illness began according to his opinion twelve years ago with cough, asthma and loss of weight. Before that illness he weighed nearly two hundred pounds.

Present illness: patient had worked until about February 18, 1923; at that time he had to stop work and go to bed. He had complained of pain in the region of the right kidney, had considerable temperature and a very rapid pulse. He was very thin, probably weighing about one hundred and twenty pounds and coughed a great deal. Examination of urine showed considerable pus. No T. B. were found in sputum on several examinations. He became worse and was sent to the hospital on March 10, 1923. Had to sit up in bed most of the time. He had a great deal of pleuritic pain, coughed, and expectorated blood tinged sputum. His pulse varied from 100 to 136 and had about 100° temperature most of the time. Wassermann negative. X-ray of lungs showed typical tumor shadow in both lungs. He gradually grew weaker and died on March 28, 1923.

Autopsy revealed no tumor in liver, stomach, kidneys, pancreas, prostate, intestines or mediastinum. There were strong pleuritic adhesions on both sides of the chest. The whole of both lungs, except the lower lobes were the seat of tumors, part of which showed necrosis and cavities.

Reports from Pathological Laboratory at Phoenix stated that this tumor had the characteristic appearance of carcinoma. The chief unusual feature in this case consisted in having primary carcinoma in both lungs.

G. M. Age fifty-three, male, miner. Previous

CASE 7

history negative. In September, 1923, following a blow on the right side of chest, he became short

winded, coughed with considerable pleuritic pain. The sputum was mucoid in character, later blood tinged and toward the last he coughed up pieces of tumor. Effusion of fluid into right pleural cavity, chest aspirated on two occasions; first time little fluid obtained, second time 500 cc. During the last month of his sickness the right arm and side became very edematous, also the left eye had a marked degree of exophthalmos. There was metastasis in the glands of the neck, manifested by the edema of the arm. There must have been some growth behind the left eye, shown by the protrusion of the eye ball. There was enlargement of the liver and nodules could be plainly felt. He died in April, 1924, seven months after onset.

Another class of cases that we observed were those resulting from fat embolism. Gauss has shown that by simple addition of oil to the blood the viscosity is greatly increased, thereby slowing the stream as it passes through the lung capillaries which are long and poorly supported. Fat embolism may follow any operation in which the fatty tissue has been injured, even after burns. Man has normally five-tenths to eight-tenths per cent of fat in the blood.

Fat embolism is an acute circulatory disturbance caused by trauma, manifested anatomically by the presence of fat globules in the circulation and by certain secondary changes which these produce clinically, recognized by presence of restlessness, coma and frequently death. In our experience it has followed fractures which caused a liberation of the fat globules in the medullary canal of the bone, plus the ruptured vessels surrounding and passage of the free fat globules into the circulation.

The body is able to take care of a certain amount of fat in the blood. It may be eliminated from the circulation in four ways: (1) lodges in the kidney glomeruli where it passes through the intercellular spaces into the urine; (2) some may be excreted through the bile into the intestines; (3) some may be destroyed by the endothelial phagocytes; (4) the rest may be emulsified by the mechanical action of the blood current, aided to some extent by the saponification action of the blood lipase and reabsorbed into the tissues.

The probable way that fat enters the general circulation is through vessels within calcified tubules in the bones. These calcified tubules are unable to collapse. They remain open and provide suitable openings for the fat globules. In this way they are carried to the heart and thence to the lungs where they lodge in the capillaries forming effective emboli, blocking some of the smaller vessels, and setting up a chain of symptoms; namely, hyperemia, edema, occlusion of arterioles, and round cell infiltration. Clinically manifested by restless-

ness, rapid feeble pulse, pallor, cyanosis, dyspnea, expectoration of bloody sputum, with signs of pulmonary edema. Again it may cause a thrombosis of the pulmonary artery with all the signs of a pneumonia, high temperature, and putrid sputum till death. This sputum is quite pathognomonic. In the first instance the heart is unable to cope with the embarrassment, and air hunger, asphyxia and death ensue. Of the first instance we have had two cases in our hospital. Thrombosis of the pulmonary artery has occurred once. Remember:

(1) Gentleness in manipulating fractured bones may prevent this serious trouble;

(2) Hemostasis is one important factor in preventing fat globules from entering the blood stream;

(3) Fat droplets appearing early in the sputum is one of the newer signs of fat embolism.

W. W. W. Age forty-nine, married. Taken sick July 3, 1924, with sore throat. First seen July 4, 1924; temperature 101°, pulse 90, resp. 24. Upon examination could get crepitant rales, posteriorly at inferior angle of scapula. He was coughing incessantly with little or no expectoration. Sent to hospital. Laboratory report; leucocyte count, 13,000; PMN 80; Lymph. 11; Trans. 3; Baso, 3; Myelo, 3. Urine negative. One week after entering hospital patient had a hard chill followed by cyanosis and rapid weak pulse. Began to expectorate rusty sputum which rapidly changed in character to a brownish, very offensive, thin stringy sputum. Physical signs of consolidation in upper right lung down to fifth rib. X-ray picture shows shadow corresponding to this area. Repeated examination of sputum never revealed tubercle bacilli. Successive x-ray pictures showed a gradual recession of the process until the lung was practically normal. There was a definite cavity formed which would fill with brownish purulent material and would empty itself by expectora-

tion. This case I believe was a true case of infarction of the lung with necrosis and subsequent elimination of necrotic material and recovery.

Our records in the Calumet & Arizona Hospital show in 2529 operations two deaths from pulmonary embolism. During the same period 559 fractures of all descriptions were treated with two deaths from pulmonary fat embolism.

Case 7402. Miner, age thirty-three, married, came into the hospital with a fracture of the left tibia and fibula, junction lower and middle thirds with very severe bruising of soft tissues. He was x-rayed, placed in temporary splints and put to bed. On the sixth day had temperature of 103, pulse 116, resp. 24, feeling of suffocation, no pain. Respirations at times irregular, fine crepitant rales over lower right lung, pulse and temperature dropped to normal in the course of four days.

On the thirteenth day noticed a phlebitis of left femoral vein. On the fifteenth day under ether anesthesia a plaster cast was applied to the leg. On the thirty-fourth day after admission the plaster cast was removed, and reapplied. On the thirty-sixth day, two days after reapplying the cast, he began perspiring freely; temperature 102, pulse 132, resp. 35, pain in right side of chest. On thirty-eighth day began spitting small dark blood clots, then bloody mucous with severe coughing spells; the sputum changed rapidly to a thin brownish purulent sputum with a very fetid odor which persisted until death, for three days after entering and eight days after the last cast was applied. He had all the clinical symptoms of a lobar pneumonia.

Post Mortem: We found the right lung simply a shell with shreds running across it. The pulmonary artery was plugged with an embolus which had caused a thrombosis extending down into the smaller vessels.

(1) During the first week this man evidently had some slight fat embolism in his right lung.

(2) A thrombosis occurred in the left femoral vein.

(3) He had an embolism, fat or piece of the thrombosed femoral vein lodging in the right pulmonary artery which caused a thrombosis and death.

TWENTY-FIVE YEARS OF FRACTURES

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Calumet Hospital, Douglas, Arizona.

We speak from an experience of twenty-five years in industrial and general surgery. During this time we have had to do, either as principals or consultants, with several hundred cases of fractures—fractures which have variously involved all the bones of the body from the head to the toes. As a result of this personal experience, perennially enriched by study of old and new masters in surgery, we have arrived at certain conclusions pertaining to the management of fractures, conclusions which, though they be for the moment rather well established in our minds, are

yet subject to such alteration as further experience and study may suggest. We do not claim to speak the last word on fractures, nor have we any argument with others whose methods, differing from ours, have given satisfactory results. We merely attempt to crystallize what we have learned from our twenty-five years' experience. First some general points:

X-RAY

With few exceptions, we not only fluoroscope but make films of our fractures. The fluoroscope may give reliable information ninety-five percent of the time, but to be

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sure that nothing is being overlooked and to afford opportunity for more deliberate study, we consider films necessary. When a diagnosis is made, the fluoroscope may be of great assistance in making proper reduction. When this is accomplished, final films complete the routine, not only to check the result, but to furnish a permanent record. We consider it necessary to take a picture in any severe contusion or supposed sprain of the wrist, hand, ankle or foot, even though the usual signs of fracture be lacking. Frequently a film has shown a crack in a digit or in the end of one of the long bones which might otherwise have escaped observation.

ANESTHETICS

Fractures of the hands, feet, ribs, scapula and clavicle rarely require one; arm, thigh and leg, about half and half; forearm, more often than not. Avoidance of pain and muscular relaxation are the desiderata. It is too easy to err on the side of omission. Any case that will require more than a minimum of manipulation should have an anesthetic, children almost always.

SPLINTS

Aside from the finger, practically all of our fixation splints are of moulded plaster. Being so easily and quickly made and so perfectly adaptable in size and shape they have proven very superior to any other material.

OPERATIVE TREATMENT

Our attitude toward operative treatment of closed fractures is one of extreme conservatism. We would be reluctant to operate in any case where the probabilities of a good functional result were present, even though the anatomical results were far from perfect. Cases of absolute non-approximation of fragments or of truly ununited fractures may call for operation, but in general we have great respect for the integrity of the cuticle. Neither is the danger of operative shock to be disregarded. We have seen two fatalities immediately follow operative interference in fractures of the femur. Most patients would prefer to look down on a slightly crooked thigh than up to a tombstone.

Passing now to regional groups of fractures for more particular consideration, we may dismiss several with hardly more than a gesture. Probably fractures of the scapula, wrist, hand, foot, fingers and toes are treated in about the same manner the world over. Generally there is but slight displacement and the problem is one of maintaining fixation in the way most comfortable for the patient.

CLAVICLE

We used to treat fractures of the clavicle in orthodox text book fashion—Velpau bandage, barrel stave splint, etc. Early in our experience we found that almost never were the fragments maintained in good anatomical position by these methods, yet the end results were satisfactory. For years we have treated these fractures by simply putting the forearm in a sling with perhaps a turn or two of bandage to retain the arm loosely to the body—our results being uniformly good. We have never happened to have a case wherein more perfect cosmetic results were desired, as in case of a woman. Possibly such a case would be put to bed and other methods followed, but in treating large, rough men, our method as above has been satisfactory, and certainly our patients have been much more comfortable than with former methods.

ARM

Upper arm fractures have mostly done well with simple chest fixation, although we probably have been fortunate in not having many complicated cases to deal with. Yet one of our most troublesome cases was of non-union of the humerus, although this was apparently independent of treatment or fixation methods.

FOREARM

Our bete noir has been forearm fractures. Many have been reduced and retained readily, while some have appeared to defy all manipulation and appliances. In these fractures we have no hesitation in operating if approximation cannot be secured by usual methods; open and plate one bone; the other usually then takes care of itself; if not, that also; the plates to come out in due time.

FEMUR

In fractures of the femur we admit a preference for the Hodgen splint. During our first three years of practice we were with the Calumet and Hecla Mine in Michigan, where, with 6,000 men employed, fractures of the femur were numerous. We saw case after case come in, be put up in a Hodgen's, (this you must remember, before the days of x-ray), stay from four to eight weeks and then be sent out on crutches in a plaster cast from groin to ankle, and with a final good result. We believe that for first adjustment and the constant readjustment often required, for ready inspection, for ease in modifying pulls in required directions and for the comfort of the patient, nothing equals the Hodgen. We have never had occasion to use ice tongs. We have no quarrel with those who use

the Buck or Thomas; we admit we have used the latter not at all, the former but seldom. It is a matter of being used to a method which does the best for the individual operator; at present we see no reason for not sticking to the Hodgen.

The above applies to fractures of the shaft. Those of the neck require special consideration. Many of these we consider suitable for a Hodgen. We would have to regard each case as individual. We have seen some very good and some very lamentable results follow the Hawley table extension and plaster method. Case for case we would expect as good results from the Hodgen. We may perhaps be consoled by a recently noted conclusion of a German surgeon who stated that practically no progress has been made for one hundred years in treating fractures of the neck and that we may expect imperfect results in at least fifty percent of our cases.

For fractures of the leg, Buck's extension, if necessary, and early plaster. We have never used pins. Here again we are skittish about insulting the cuticle. Others, no doubt, do it with impunity.

SPINE

Every time a fracture of the spine has come within our purview (perhaps a dozen cases in all) we have zealously studied the

literature afresh and have regularly come to the conclusion that there are no very fixed rules to follow, except as regards cases at the two extremes, viz: excessive dislocation of fragments and consequent irremediable damage to the cord or slight dislocation with few or no symptoms of cord involvement. Between these two is a large explored but unsettled country. Without arguing our point we have settled down to this: For cases at the extremes, do nothing; for all others operate.

SKULL

Of skull fractures, those of the base are let alone. We have never done a decompression, nor have we seen a fatal basal fracture in which the post mortem findings indicated that a decompression might have done good. Fractures of the vault are operated p. r. n.

Our experience with fractures of the pelvis, patella and jaw has been so slight as to warrant no general observations.

This hasty resume gives our beliefs at the present moment in regard to the treatment of fractures. We do not consider these opinions fixed and unalterable or that other quite contrary opinions must be wrong. As expressed above, they simply represent what our experience has taught us.

SOME PROBLEMS OF THE INDUSTRIAL SURGEON

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The industrial surgeon has his peculiar problems. They are not primarily those of the general surgeon or of the orthopedic man. When we discuss the problems of the industrial surgeon we should confine ourselves to those which are practically unknown to the general practitioner or surgeon but which are common to all physicians who work for industrial corporations.

I quite agree with the statement of Dr. John E. Bacon in his able paper before the Medical and Surgical Association of the Southwest that industrial surgery is fast becoming a specialty. Several of this body of physicians meeting here today remember the time, only a few years ago, when the physician seeking employment from a mining or manufacturing corporation did so because he could earn a living no other way or because he was a particular friend or relative of the management. That day is fast passing and the present day industrial physician and surgeon is chosen because

of his ability to handle successfully those cases which are peculiar to industry.

Consequently we find that the best type of industrial surgeon is one who is not purely an orthopedist nor a typical general surgeon nor yet a hydro or electro-therapist, but one who must have a general knowledge of all these branches. But this is not all; the industrial surgeon and physician would be absolutely at sea if, although possessing scientific skill, he failed to understand the peculiar psychology exhibited by a goodly percentage of his patients.

It is quite obvious, therefore, that the first problem confronting the young physician entering industrial medicine is that he is not dealing with a simple relationship of patient and physician but that, however skillfully he may be handling his individual patient, he is, at the same time, in a percentage of his patients, conscious of an attitude of distrust or impatience never or seldom seen in the private practice of med-

icine. This attitude is not in most cases due to the patient's fear of the results of treatment but rather to a desire of the patient to impress his physician with the gravity of his injury and thus to make his compensation more extensive or his settlement more liberal. To the industrial surgeon of much experience this class of patient is also a problem. Unlike his young assistant, he is an unbeliever. Hardened by many experiences, his faith in mankind well-nigh destroyed, he is prone to see in every accident a malingerer and in every sickness an insurance collector. Lucky is the physician who can successfully steer between this Scylla and Charybdis.

Another problem which early comes to the industrial surgeon is one which bothered the human race in ancient days. The good book tells us that we cannot serve two masters and yet what industrial surgeon does not attempt this impossible feat, and, strange to say, usually meets with extraordinary success. I have unfortunately seen several young physicians attack this problem or rather side step it and attempt to serve only one master to the contempt of the other. Whichever master he has chosen has never been able to save him from bitter experience and, finally, from absolute failure. There is only one solution to this problem and that is absolute impartiality and strict fairness to both employer and employee. No other system has ever succeeded or will succeed.

Perhaps the most important problem confronting the industrial surgeon is the one so ably discussed by Dr. Bacon in the aforementioned paper; namely, that of having to pass all his work in review for his employer, his patient and possibly the court. I care not how skillfully the surgeon has handled his case, if permanent disability follows, some one of these parties will be hard to satisfy. How often have we heard from one class of our patients, "See how much the doctor saved from this terrible accident I had;" and how often from another class; "See how much I am crippled."

The only solution of this problem is the most painstaking, conscientious work from start to finish, never sparing frequent examinations, x-rays, massage, electricity, bakings and any other procedure which might contribute to a slight lessening of disability. Disabilities we must have; let us make them as slight as possible.

The other problem which I consider refers particularly to relations with employees is one calling for the greatest generosity and tolerance. We are often prone to

forget that the physician is a highly educated man and a large percentage of his patients are quite ignorant. In dealing with these people we have to consider them often as children looking for sympathy, advice and sometimes medicine which they do not require. We must never forget, in all the confusion of compensation laws and multiple insurance policies, that all parties are human and frail, and that so long as our cases are considered medical we are the physician and the patient our case. But when our task is accomplished to the best of our ability, we should stand on our rights for fair play to the physician and never allow malicious complaints to pass uncensored or unpunished. The industrial physician who stands for absolute fairness, does painstaking, conscientious work and is interested in his fellowmen, needs not fear his problems. They usually dissolve like the clouds as he advances.

Time forbids a thorough discussion of all the problems peculiar to the industrial surgeon; neither would such a discussion be interesting or profitable.

However, in concluding this short presentation, I wish to note two problems, one referring particularly to employers and the other to employees. The industrial surgeon has always been an overworked individual. Unlike the man in private practice he cannot refuse work when tired or indisposed. When his year's work is completed and he is given a short vacation he is in no physical or mental condition to do post graduate work. He must rest and play.

The only solution of this problem, which I consider as one referring particularly to the employer and physician, is for each employer to make special provision for his physicians to keep abreast of the times and insist that post-graduate work be taken regularly, and of course, it is just as essential for the physician to adopt the same attitude.

The other problem referring to the relations of industrial surgeon and employee is one somewhat difficult to solve.

Employees who are what we call old-timers do not present this problem in anything like the degree that newcomers do. No matter how conscientious the industrial surgeon may be he cannot satisfy all his patients. The patient cannot in all cases have the physician he would naturally choose. Complaints will arise, some justifiable and some not. The appointment of hospital committees has solved a portion of this problem, but in spite of this improvement, there are occasional complaints. Trivial troubles should never be tolerated

by any hospital committee or chief surgeon, for the industrial surgeon has far more justifiable complaints against the employee in his abuse of the hospital service than can be charged to him in neglect or lack of interest in his patients. If the industrial surgeon is as careful with his company cases as he is with his private ones, he will find little trouble. He must, however, insist that he be treated fairly by his patients. It is a poor rule that does not work both ways.

If complaints can be lodged against physicians, the same privilege must be allowed the physician to complain about his treatment at the hands of the employee. It is very obvious, therefore, that a good hospital committee can weed out the trivial from the serious, and, as has happened in several localities, including our own, reduce the number of complaints very markedly and establish very pleasant relations between physicians and patients in a very large percent of cases.

INDUSTRIAL HERNIA

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The subject of industrial hernia has been thoroughly investigated on a scientific basis by some of the most competent men, not only of this country but also of the foreign countries. The purpose of this paper, therefore, is not to attempt to present something new, but to bring out some of the accepted facts, for the benefit of those who have not kept posted on these investigations and reports.

Those of the profession engaged in industrial work have all had occasion to investigate this subject and I believe are all very familiar with it. It is, however, the general practitioner and the medical man, to whom many of these cases go for advice, who have not given this subject careful consideration and very frequently advise them contrary to the generally accepted opinions on acquired or industrial hernia.

Some authors attribute the misunderstanding and confusion of this subject to the use of the word "rupture" as synonymous with hernia. Rupture naturally implies an injury. As Berger has said, "there is not an individual who, having a hernia, at the moment when he noticed its existence, did not at once attribute it to an accidental cause, most often to an effort." This is a perfectly natural assumption, but it is not based upon any anatomical or pathological foundation.

In order to understand the mechanism of inguinal hernia it is necessary briefly to recall the embryology of the inguinal canal. You will recall the fact that the testicle develops in fetal life in the lumbar region, behind the peritoneum to which it is attached. At the end of the fifth month, it begins its descent to the scrotum. A process of peritoneum proceeds the passage of the testicle into the scrotum. This fold or pouch of

peritoneum, which is carried down through the inguinal canal into the scrotum with the testicle, forms the processus vaginalis. Soon after birth this pouch is supposed to become obliterated, due to the fact that the walls are in apposition and produce irritation enough to cause adhesions. Unfortunately, the obliteration of this sac does not always occur and it may be entirely open, as shown by the fact that many children are born with a complete hernia. This fact is further demonstrated by dissections in adults, showing the pouch was still patent throughout life, although there has never been any actual filling of it by the abdominal contents. Also there are many adults who had congenital hernias in infancy, which were supposed to have been cured and closed off, but in later years become full sized hernias, following attacks of bronchitis.

The connection between oblique or indirect inguinal hernia and the unobliterated processus vaginalis is the foundation of the present day medical conception as to the cause of hernia. This fact was verified by Dr. J. M. Wainwright, who personally made a very extensive review of all the medical literature on this subject in English, French, Italian and German, over two hundred articles, and found not a single one taking issue with this view. According to Wainwright, there can be no ground whatever for denying that a congenital sac is present in practically every case of oblique inguinal hernia, and that this is the great and efficient predisposing cause of this type of hernia, and of its own account, without any essential exciting cause, is responsible for the natural production of most hernias. Medical opinion is unanimous on this as a scientific point. It is founded on

incontrovertible evidence of dissections, operations and clinical observations.

Briefly the history of the usual case of industrial or acquired inguinal hernia is as follows: The man while occupied at his regular work, suddenly receives an unusual strain; he may notice a slight pain in his inguinal region, but as a rule does not stop work for more than a few minutes. In a few days he notices a swelling or tumor mass in the inguinal region, which, according to the general public view, he believes is a rupture due to the strain received. This man is perfectly honest and sincere in believing that this strain was the cause of his hernia or rupture, and even one of our medical men at a recent meeting in this state, in reciting a similar case, stated that he knew the man was not lying about it and that he believed the injury or strain had produced the hernia.

Now why do we say this one injury or strain is not the cause of this hernia? In the first place it is generally accepted that it cannot be produced in its complete form, unless there is a patent sac present. The forcing of a pouch of peritoneum through the external ring could not be produced in a normal person from any internal pressure, without tearing or literally rupturing the peritoneum, because it cannot stretch suddenly to form a sac. It is claimed by eminent authorities that a diffuse contusion to the abdomen cannot produce an inguinal hernia and that a local contusion will only produce an injury at site of contact. Also, the fact that some authors claim that merely the cutting off and tying of the hernial sac is sufficient to cure the majority of hernias, showing that there must be a patent peritoneal pouch extending into the inguinal canal before an indirect inguinal hernia can be produced.

If you will stop to consider the anatomy of the indirect inguinal hernia, you will remember that the peritoneal pouch is always in front of the spermatic cord, vessels and testicle, in the same exact position and relations as are the admitted congenital hernia. If the hernia was due to a weakness of the inguinal canal, muscles and fascia, as believed by some, then why should this pouch of peritoneum be forced out always in the same relative position into the cord and to the testicle and not outside the cord, if it were not for the presence of a congenital sac to guide it?

It is also noted by the men doing a great deal of hernia work, that practically all of these hernial sacs are found at operation to be firmly bound down and attached to the surrounding tissues, showing that they

are of long duration and not recently developed.

What really occurs in the above described case is this. In the first place, there was present a congenital pouch of peritoneum extending a variable distance into the inguinal canal and cord. During this strain or injury he complains of, he probably for the first time forced some of the abdominal contents into the sac and it was thus the first visible evidence to him that he had a hernia. Now the question arises as to whether this strain or injury is really the cause of the hernia. In the first place, if the individual had been normal without a congenital sac present, it could not have occurred. In the second place, it merely caused the filling of the sac, which might have occurred just as readily from sneezing, coughing or straining at stool. It only made the hernia apparent, but not in any way caused it. It might easily be compared to an employee going to work with varicose veins of the legs. Both of these conditions may be partially the result of the position assumed by the employee while at work or the result of strain he is exposed to, and yet it would scarcely be right to make the occupation responsible for an affection, the result of an inherent weakness in the abdominal wall which allowed a portion of the intestine to protrude into a preformed sac, causing a hernia, or for an ill-nourished condition of the walls of the veins in the legs, whereby the blood vessels become distended and distorted.

Even if the strain which the employee alleges as the sole and final cause of his hernia has made it a little larger and evident to himself and others, it has not produced any material change and has aggravated nothing in the sense that it has created a new condition, which justifies holding the employer responsible for a slightly smaller hernia which has already been present for a long time. The mere fact that a given hernia does, after a certain incident, contain a little more intestine or omentum than it did before does not essentially alter its condition, does not produce a new condition which is more disabling than it was before, and does not in any way create a new condition for which the employer should be made to pay. As Moorhead has said, it is no more logical to hold this final strain to be the cause of a hernia that has been slowly developing for months than it is to consider the last expulsive effort of a woman in labor to be the cause of another human infant being born. The last labor pain is no more the cause of a baby than a thousand other incidents of the past nine months.

I will admit that the above described case honestly believes he has a legitimate claim against the employer, due to the fact that he does not know anything of the anatomy nor mechanism of the development of a hernia and also that the general public still believes that a rupture or hernia can and is caused by a single strain.

There is another type of hernia case, which is encountered by the following examples: Employee was running a machine-drill in the mine. The drill became stuck and he was pulling with both hands on the drill to get it out, when suddenly the machine came loose from the drill, striking him on the abdomen and knocked him back about two feet against a large timber. He immediately complained of pain in right inguinal region and had to be carried to the hospital. Examination on arrival at hospital showed a large right indirect inguinal hernia, extending half way to the testicle. This man claimed that he had absolutely never had any evidence of a hernia before this accident. Another employee, while pushing on a car with some other men, slipped and fell but continued to work that day, then layed off and two weeks later reported to dispensary, claiming injury to right inguinal region. Examination showed the presence of an undescended testicle in the inguinal canal in an open hernial sac. He also claimed he had never had any evidence of a hernia before.

It is very evident that there is no question about these hernias being present and fully developed before the accident. However, due to conditions in our courts, the general public's belief that a hernia is caused by a single strain or injury and the ease with which these cases are able to secure medical testimony that these hernias were the results of the accidents, the attorneys have found that it is usually cheaper to settle than to attempt to fight them in court.

Briefly the generally accepted facts in regard to acquired or industrial hernia are:

The pouch of peritoneum or processus vaginalis is not always closed.

An indirect inguinal hernia cannot be produced in its complete form, unless there is a patent sac present.

A diffuse or local contusion over the abdomen, no matter how severe, will not produce an indirect inguinal hernia, in the absence of a preformed sac, for a blow which is sufficiently severe to produce a hernia would be certain to do sufficient injury to other abdominal organs to prove fatal.

The peritoneum, even in the presence of

a large inguinal ring, will not stretch to form a sac, from a single strain or increased intra-abdominal pressure.

The stretching and filling of a pouch of peritoneum in the spermatic cord for the first time in the adult, is the result of long continued intra-abdominal pressure, except under the following conditions: If the intra-abdominal pressure is sufficiently great and there is present an open peritoneal pouch, a hernia may be produced. The pain and shock, however, will be equally great and and he will be immediately incapacitated for work.

The usual type of acquired indirect inguinal hernia, occurring soon or within a few days following some unusual strain, is merely the filling for the first time of a congenital patent processus vaginalis or really a delayed congenital hernia.

The true traumatic hernia is, as the name implies, a true trauma and tearing of tissues from a direct external contusion, and is not considered under the head of acquired inguinal hernia of the indirect type.

A more general knowledge of the above facts by the general profession, should, while in no way interfering with the fullest measure of justice being meted out to the injured or cripples, nevertheless greatly restrain those who have a hernia from making it the sole cause for demanding extortionate sums. It does not seem just that any employer should be held responsible for an anatomic malformation of his employee nor should he under any circumstance be made to pay damages for said defect.

The solution then, of the industrial hernia problem, in justice to the laborer and employer, seems to be the education, first of the medical profession as a whole and then the general public and the courts, to the fact that the acquired indirect inguinal hernia cannot be produced by a single strain or injury, unless there is present a congenital preformed sac of peritoneum.

In conclusion, I might say that the Medical and Surgical Section of the American Railway Association, have probably done more to bring out the facts on this subject and help educate the profession, than any other organization. The recommendations of their Special Committee on Industrial Hernia, have already been adopted by a number of medical and surgical societies over the country, as being the expression of their views on the subject. Their recommendations will be presented in the form of a resolution for adoption as the expression of this Association on the question of industrial hernia. (See Editorial Section.)

SYMPOSIUM ON UROLOGY

SOME PROBLEMS IN PROSTATECTOMIES

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LOS ANGELES

Since Goodfellow, in 1893, performed the first perineal prostatectomy, and Freyer, in 1900, the first subtotal enucleation suprapubically, progress has been rapid and constant, until at present both operations may, in the majority of cases, be completely visualized and, in a large measure, ordinary surgical principles may be observed. One difficulty after another has been surmounted. Preparation, the most important factor of all, is now among urologists universally the great desideratum. Technic and management have been so perfected in both types of approach that, in experienced hands, the incidence of mortality and morbidity should be very low. Proust and Zuckerkindl perfected the approach to the prostate through the perineum, but their method of enucleating the prostate was crude. Young, in 1903, builded so well that all the various modifications of his operation (Dillon, Hinman, Geraghty, as well as modifications suggested by Young himself) have added little of real value to Young's original procedure.

For more than fifteen years there has been scarcely any urologic meeting at which there has not been heated controversy as to which approach—perineal or suprapubic—constitutes the better method of prostatectomy. Some could see no merit in the perineal operation; others used it almost exclusively. One advocated the perineal route for fibrous prostates and the suprapubic for large middle lobes. Some preferred the perineal for the hypertrophied prostate that in its growth remained within its anatomic limits and did not push into the bladder. Another advocated the low operation in fat patients, and then again some one else warned us against this route in the very same class of patient. As a matter of fact, there seems to have been not sufficient logic or reasons based on clinical experience to bring about a reasonable degree of agreement. After all, almost any prostate may be attacked with reasonable certainty of good results by either method, provided the operator is skilled and experienced in the particular type of operation he is doing. I have studied the question from several angles, and my purpose here is to advocate the selection of one or the other type of op-

eration after thorough study of a given case along lines that appear saner to me than those heretofore promulgated.

The low mortality rate of Young has never been quite approached by any other operator. The average mortality rate by the perineal route in the hands of the foremost operators has been about 4 per cent.¹ The incidence of morbidity, however, has been somewhat greater. The shortcomings of the perineal operation are: (a) incomplete removal; (b) various degrees of incontinence following; (c) decrease or loss of sexual power, and (d) recto-urethral fistula—rarely seen except after operation by the inexperienced.

Incomplete removal is often followed by residual urine and occasionally by a certain degree of incontinence. Incontinence is more likely to follow one of the newer procedures—enucleation en masse, even though the external sphincter is not injured. There can be no question that the sexual power of the patient is very often markedly lessened or destroyed by this type of approach. This has been attributed to injury of the periprostatic nerve plexus and is also probably due at times to injury of nerves in the perineum. One is inclined to dismiss this factor as unimportant; but the loss of all sexual desire frequently has a profound psychic effect on men around 60 or 65 years of age. Recto-urethral fistula can almost always be avoided. Admittedly, and in fact all the bad results mentioned do occur with even the most skillful and experienced operators.

Suprapubic prostatectomy, either by the two-stage operation or the one-stage open visualized operation, after the method first suggested by Hurry Fenwick, improved and perfected by Chute, Judd and Hunt, in which bleeding vessels at the bladder neck are whipped over and tied, followed or not by the use of a hemostatic bag, in properly selected cases, affords practically as low a mortality as the perineal operation, and the functional and structural results are not left to a certain chance as they are in the perineal. Incontinence is unknown after a proper suprapubic enucleation, and the gland can be readily enucleated more radically, enabling the bladder to empty itself

completely. Sexual function is never affected adversely.

Many operators (Gardner, Hunt, Bugbee, Lower, MacKenzie and others) have reported a large series with a mortality rate of from 2 to 2.5 per cent. In fact, with good fortune, Gardner and Lower had more than 100 consecutive cases without a death. Freyer had an operative mortality of 5.25 per cent. in his series of 1,625 cases, and most of these at a period when accurate methods of determining kidney function and retained nitrogen were unknown. When we consider this low mortality, however, by either type of operation, we must believe that these cases were largely among the better risks—well-to-do patients for the most part, who did not allow the prostatism to advance to the ultimate. Probably Chute's recently reported mortality rate of 10 or 11 per cent is more nearly the correct one for patients operated on in general hospitals supported by taxpayers, to which patients so often go only as a last resort. These patients often present themselves to these hospitals in the late stages, after the kidneys, heart and other organs have suffered the most marked degeneration from retention, back-pressure and long existing infection.

Studying the statistics of many operators, either published or learned by personal communication, one must arrive at the conclusion that perineal prostatectomy has a slightly lower mortality rate than suprapubic, when each is performed in the most skilful manner after the most careful preparation.

From 15 to 35 per cent of prostatic patients coming to operation—the percentage in a given series varying with social status, financial state and degree of intelligence—constitutes the class in which we may expect to harvest our mortality. These come with all sorts of lesions and degenerations in heart, kidneys, arteries, lungs and other important organs, and any ill wind may carry them off. In fact, if they survive prostatectomy, their expectancy of life is not more than from one to three years. On the other hand, the remaining 65 per cent or more are excellent risks and, if carefully prepared, have good surgery, and are wisely managed postoperatively, should recover almost to a man, no matter what type of operation is performed.

Recently we have been segregating our cases as follows:

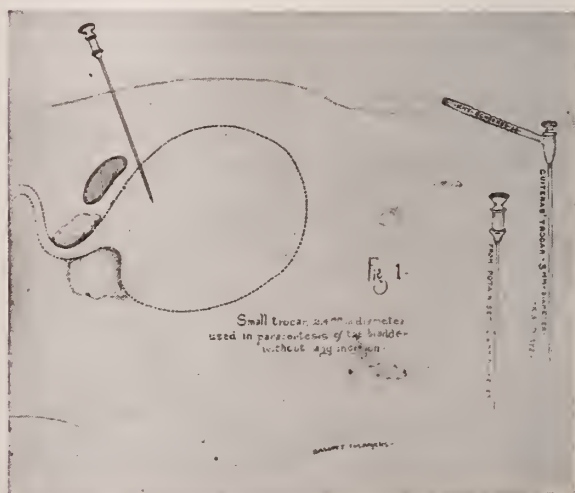
The good risk we have subjected to suprapubic operation, either one-stage with bladder neck suture plus hemostatic bag or packing, or the two-stage operation if the

catheter is not well tolerated or the urine is persistently ammoniacal from infection with urea-splitting organisms, or stone is present. Packing the bladder after the manner of Freyer following the two-stage operation is occasionally resorted to and is entirely dependable to control bleeding. It is productive, however, of much tenesmus.

With the poor risk, on the other hand, we have recently decided, in most cases, to operate by the perineal route. With caudal and transsacral anesthesia, or even with gas, it allows these patients to get about very soon, and this is an important factor in many of these decrepit old men, who develop pulmonary, cardiac and renal embarrassment most readily.

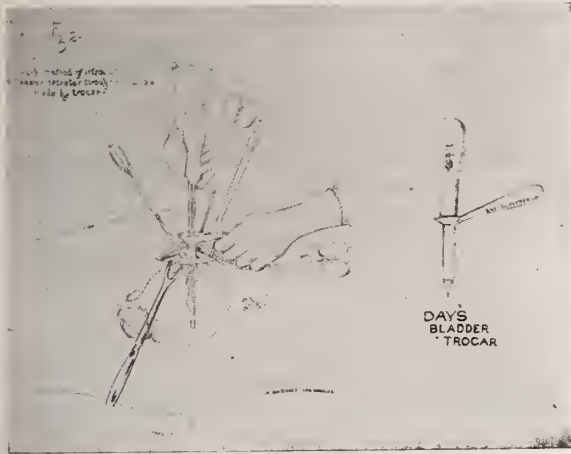
The ordinary classical suprapubic cystotomy with the bladder incision sutured water-tight around a Pezzer catheter, is familiar to all. There is frequently the necessity, however, to meet special conditions and indications, and in these the procedures have been far from standardized. Special methods will, therefore, be described and some of the difficulties they surmount will be indicated.

It occasionally becomes necessary to resort to suprapubic puncture of the bladder twice daily for several days, using a very small trocar, though sometimes after one emptying the patient will be able to void or, with relief of congestion, a catheter can be passed. **Technic:** Shave the pubis, paint with iodine and novocainize the skin and tissues with one-half per cent novocain solution. With the patient in the recumbent position, thrust the trocar downward and

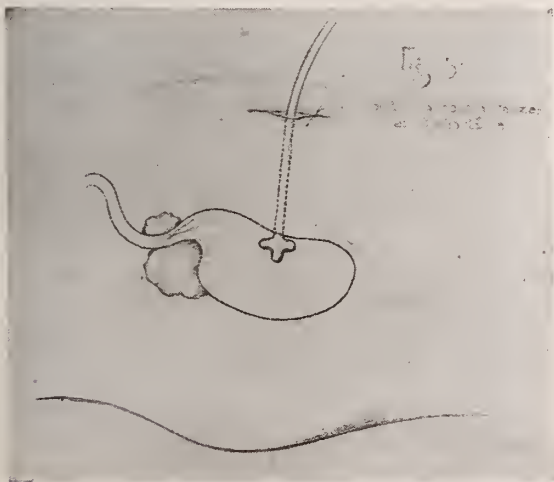


backward into the bladder (Figure 1), closely hugging the pubis. After the bladder is emptied, one must be sure to insert the obturator before withdrawing the cannula in order to prevent leakage along the

tract. The author has found the most satisfactory trocar for this purpose to be the small one ordinarily coming as a part of the Potain set—about two millimeters in diameter (Figure 1). This procedure, when required, may be kept up twice daily for as long as two weeks usually without harm or infection. The necessity for repeated puncture in this way seldom occurs.



Another trocar method employed more frequently is this A-1 special trocar (Figure 2) of large calibre with a very short cannula and a handle is used. Formerly such large trocars were used for the suprapubic introduction of ORDINARY URETHRAL CATHETERS into the bladder without an adequate exposure. This was abandoned at the Mayo Clinic and elsewhere for the reason that the peritoneal fold in some instances

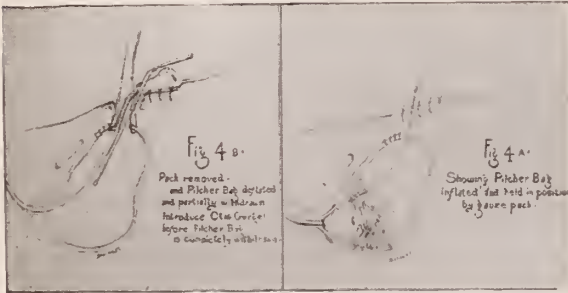


es was very low and intestinal puncture resulted. Furthermore, an ordinary catheter introduced in this way was difficult to retain with the eye at the proper depth in the bladder. A suprapubic catheter, in order to drain well, should have the eye just within

the bladder, and with an ordinary urethral catheter this would entail the eye end frequently slipping out. Local infiltration or field block is employed to incise the skin, fat and rectus aponeurosis. Green's small bladder retractors (Figure 2) are introduced and the peritoneal fold and bladder visualized. The bladder wall is then grasped with the two Allis forceps and the trocar driven into the bladder. In this way there is no possibility of injuring the ileum or other viscera. After removing the obturator a number 20 or 22 Pezzer catheter stretched on a uterine sound as shown in Figure 2 is pushed through the cannula. The catheter is released and the sound withdrawn. The cannula is then gently withdrawn, leaving the head of the Pezzer catheter in the bladder. With this technique a very short incision is required and few, if any, sutures needed (Figure 3). The patient may almost immediately be up and about without danger of hernia, infection, bleeding or discomfort. There will be no leakage around the Pezzer catheter introduced through such a round puncture hole as described. This is important in patients with enormous retentions whom one either cannot catheterize or can catheterize only with difficulty or in whom an indwelling catheter is intolerable. These patients may succumb unless the bladder is decompressed very gradually. The procedure is invaluable to one who follows Lowsley's method of two-stage prostatectomy, namely, preliminary suprapubic drainage with a secondary perineal prostatectomy later on. It is also ideal in the occasional cardiorenal case with prostatism where intermittent catheterization or indwelling catheter is difficult or distressing. It is a minor procedure with very little shock. The operation has, however, certain definite drawbacks when done as the first stage of a two-stage suprapubic prostatectomy, namely; there is a very marked sclerosis around the catheter involving the peritoneal fold with a minimum of dilatability, and this is often responsible for a nasty tear in the peritoneum occurring during the second stage of the prostatectomy. Therefore, in the (ordinary) two-stage prostatectomy, it is much better to use the classical cystotomy.

Insertion of suprapubic drains following removal of a Pilcher bag or gauze packing a day or two after a one-stage suprapubic prostatectomy, requires a special technic in order to facilitate the introduction of the drain and to prevent the patient's having a great deal of pain therefrom. Hunt's method of introducing a large urethral catheter

by attaching the eye to the silk cord inside the urethral tube of the Pilcher bag and withdrawing the bag, is effective enough so far as concerns the insertion of the cath-

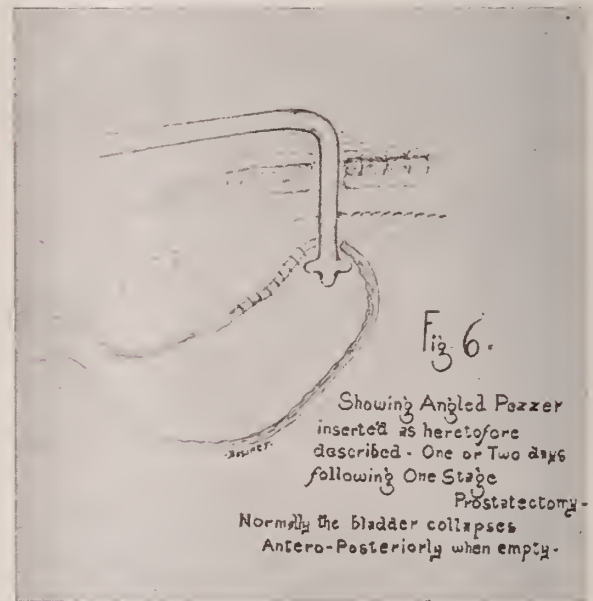


eter; but more often than not a catheter thus inserted fails to drain efficiently for the first few days due to plugging. Where the Pilcher bag is used with or without an overlying gauze pack (Figure 4), the suprapubic drainage tube may be introduced through the bladder incision after removal of the bag or gauze (Figure 4b). The size of the opening in the bladder remaining after partial suture is important. If unne-



essarily large, closure will be delayed; if too small, there will be difficulty in introducing a drainage tube of sufficient calibre, besides there being left no safety space around the tube, in case of clots in the tube or in the bladder. Therefore, the incision in the bladder wall is sutured (beginning

at the lower angle) so as to leave unsutured just a fair sized opening in the bladder—say one-half inch at the upper angle (Figure 4). Then two stay sutures of distinctive material—heavy black silk—(Figure 4B) are inserted as loops but not tied through the bladder wall, one at the upper termination of the chromic gut approximation and the other just below the peritoneal fold, and both cut long enough to appear well outside the abdomen. Tie one knot in the lower, two in the upper for subsequent identification. With these one has absolute control of the bladder and can always locate the unsutured drainage space between them. Finally one can easily introduce a large Pezzer catheter stretched on a uterine sound between two gorgets previously inserted into the bladder (Figure 5). Removal of the sound and gorgets



leaves the Pezzer so placed that usually all the urine drains through the tube (Figure 6). With this method there is less leakage, less discomfort and less danger of epididymitis and other infections than with an urethral catheter.

The opinions here stated are based on more than 200 prostatectomies that I have performed, about 20 per cent of which were done perineally. There has been no death among the perineal cases since the days of phenolsulphonaphthalein. In private practice my mortality rate after suprapubic prostatectomy has been 4.3 per cent., and this notwithstanding that until recently all the bad risks were operated on suprapubically in two stages.

CONCLUSIONS

1. Sixty-five per cent. or more of prostatic patients requiring prostatectomy are good risks and have a reasonable expectancy of life for from four to twenty years.

2. The operative mortality rate in this selected class of cases should not be more than 1 per cent. from either type of operation.

3. The choice of anesthetic is a great factor. The mortality has shown a considerable drop with the introduction and use of caudal and transsacral or gas anesthesia for perineal operations, and caudal and transsacral plus field block in suprapubic operations or the use of spinal anesthesia.

4. From 15 to 35 per cent of any given series are poor risks, and the mortality rate is probably at least twice as great in these cases with the suprapubic route as it is perineally. These patients have a reason-

able expectancy of not more than from one to three years at best, but should be satisfied to take the chance of an occasional bad functional result.

5. On the other hand, the younger and sounder man with a reasonable expectancy of a considerable number of years to live and vitality sufficient to withstand a more radical and precise suprapubic enucleation, with sure preservation of sphincter control, no diminution of sexual power and no risk of having a urethrorectal fistula, I believe should have the suprapubic operation in all cases. Bad results after suprapubic operations should not occur; but if they do occur, they are easily corrected. Most bad results after perineal operations are irremediable.

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THE PATHOLOGY OF ANURIA*

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Anuria is of three types, prerenal, renal and postrenal. That is to say, the primary cause lies in the blood stream, in the kidney itself, or in the urinary channel. Having been once initiated in the first or third, damage to the second (i. e., the kidney), quickly results. It is, as a matter of fact, difficult to separate anuria into one of these classes and to say that the trouble is located solely there. At first it might seem that if the kidney itself were the offending member, here alone will be the trouble. Consideration of the resulting vicious circle initiated at this point, however, shows that as soon as the kidney holds back some of the constituents which it should remove, the blood is changed and the disease is no longer purely renal.

Physiology:—A brief consideration of the physiology of the output of urine is necessary before the extreme perversion of this function into anuria may be understood. It is now generally conceded that the process is one of combined secretion and filtration. John Roberts Caulk has said that "true secretion on the part of the renal epithelium has been settled in the affirmative beyond a doubt." Briefly, this is proven by the fact that the individual constituents of the blood are changed before they reach the urine. Further, it is believed that this change takes place by the vital activity of the renal cells situated in the convoluted

tubules and the ascending tubules of Henle's loops. Richards and Schmidt, and later Richards alone, have shown by direct observation of the glomerular circulation in the frog's kidney, that all parts of that structure do not function simultaneously. That is to say, there is an intermittence of urinary function which bears no relationship to the rhythm of the heart's action or to any other activity outside the kidney except, of course, to that highly mysterious one we call life. They have shown experimentally that cessation of activity in a part of the kidney is brought about by a condition of anoxemia. Anoxemia in turn is dependent upon vasoconstrictor impulses to the arterioles of the kidney and is relieved by the consequent vasodilatation which follows constriction, provided the primary stimulus is not lethal.

Colloidal chemistry furnishes further appreciation of renal activity when it is understood that some of the constituents of the blood and urine exist as colloids and that the exchange between the two is carried on through an animal membrane. Therefore, it is reasonable to suppose that at least some of the laws of colloidal chemistry are applicable to kidney function, more particularly that of pressure.

Now aside from the function resident in the kidney cells themselves which we have chosen to call vital, the whole mechanism

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depends upon the differential pressure upon either side of this animal membrane. The pressure of the blood stream being, of course, the normal pulse pressure of from 20 to 40 m. m. Hg., raised in the glomeruli to 90 m. m. Hg., and, on the other side, the pressure existing in the pelvis of the kidney.

From this brief consideration of kidney physiology it may be deduced, first, that the production of urine is materially influenced by the rate of circulation, by the pressure of circulation, molecular concentration, volume and viscosity of the blood in the kidneys; second, by the fact that for perfect function the urinary channels throughout their course must be free and unobstructed.

Prerenal Anuria:—When there is a disturbance of the first of these, i. e. in the blood stream, the resulting anuria is termed prerenal. One of the causes then for this condition is found in fall of blood pressure resulting from any source. One naturally thinks first of weakness of the myocardium as a cause for this fall. The condition of the circulation and more particularly of the myocardium is of utmost importance in all urological surgery. This is especially true in old prostates. The proof of the pudding is in the eating thereof. We are having fewer prostatic deaths following operation since we have learned to support the heart ahead of time.

Another type of prerenal anuria which is less understood is the anuria of reflex nervous origin, which results some times following abdominal operations where the urinary system is not invaded. Prerenal anuria originating in the posterior lobe of the pituitary body is a possibility and has been produced experimentally in animals by administration of this extract. While rather remote, it is a possibility and is worth remembering by those of us who are in the habit of using pituitary extract in therapy. The same may be said of opium.

Other experimental studies seem at least to point to the presence in the mucosa of the duodenum of a substance which promotes kidney activity. This supposition explains the fact that water given by vein does not promote diuresis as readily as it does when given by mouth and gives us a good reason for using the duodenal tube for introduction of water postoperative.

Renal Anuria:—It is out of place before this gathering for me to enumerate the insults which may be delivered to the kidney itself and the consequent results. An interesting speculation, however, here presents itself. In the light of the observations of Richards and Schmidt on glomeru-

lar activity is it not possible that fixation of gravity of the urine seen early in nephritis may be due to the fact that some of the glomeruli have permanently ceased to operate?

Postrenal Anuria:—Increased pressure in the urinary hannel, particularly in the ureter is synonymous with postrenal anuria. This increase of pressure may result from sudden blocking of both ureters or from the complete obstruction of one ureter where the other kidney is not functioning as a result of removal or congenital absence. If the ureter on one side is blocked and the other kidney is diseased so that it cannot carry on when required to bear the extra burden thus laid upon it, it has the same effect as removal. Infantile kidney and congenital hydronephrosis are less common contributory causes of anuria when the exciting cause of blocking of one ureter is present. Postrenal anuria resulting from the so-called reno-renal reflex, occurs also when one ureter is blocked by stone. It is thought, however, that this condition is not as common as was once believed and that cases in which it seemingly occurs, fall into one of the other classifications, i. e., some damage of the kidney called upon to do the work of two. Conclusive proof offered for the theory of reno-renal reflex are the three classical cases reported by Rovsing, in each of which anuria followed nephrectomy where a clamp was left on the pedicle. In each of these, the other kidney resumed function after an anuria of two or three days as soon as the clamp was removed from the nephrectomy wound.

Stone blocking the ureter, which is the commonest cause of postrenal anuria, results promptly in an accumulation of urine above the point at which the ureter is blocked. Having in mind the law of pressure regulating osmosis of colloids, it will seem that this pressure when it reaches a point 40 m. m. of Hg. below the pressure of the blood in the glomeruli prevents further passage through the animal membrane. The result then is that no more plasma colloids reach the urine. Their retention is responsible for the clinical picture. Nevertheless, water is still added to the stagnant stream and the pressure against the kidney parenchyma is increased. The picture now becomes one of renal anuria as well. The pressure upon the kidney has the same effect upon the arterioles as the vasoconstrictor impulses previously described, with the difference that this pressure, unless relieved, becomes lethal and permanent damage is done the kidney. One of the dangers which must be borne in mind by one who is doing ureteral catheterization and

pyelography is that of anuria following these operations. This condition is temporary, however, and should not occur in those cases where the patient is adequately prepared. Pilateral pyelography obviously is more dangerous than unilateral. Obstruction of the ureter by new growth of the bladder or surrounding tissue, may produce anuria as may naturally ligation of one or both ureters in the course of pelvic surgery. In all obstructed cases, the modus operandi is the same. Brief consideration of the pathology of prostatic obstruction illustrates the vicious circle of anuria beautifully. Accumulated urine in the bladder produces back pressure upon the kidney pelvis. Blood pressure is raised in order to keep up the differential pressure of filtration. The myocardium suffers, becomes tired, grows flabby, blood pressure falls. retention of nitrogenous products in the blood stream results and further poisons the heart, the kidneys are damaged and the chain of noxious results is complete.

SUMMARY AND CONCLUSIONS

In conclusion then, anuria is of three types, of which the prerenal and postrenal

varieties are soon complicated by renal damage.

Hypotension is the most important factor in the production of the prerenal variety and as a corollary to this statement, it may be said that frequent blood pressure readings are an essential of pre-operation preparation.

Water, the universal solvent, is essential, but should not be crowded to the point where it embarrasses the circulation. Because of the factor of safety in the kidney which allows part of it to suspend while the remainder is at work, early pathology is difficult of recognition and should be looked for more diligently.

Reno-renal reflex, while it does occur, is rare and the kidney supposedly affected thereby is usually a damaged one.

Back pressure in the ureter from whatever cause produces anuria by interference with colloidal osmosis and by destruction of renal tissue.

Bilateral catheterization and pyelography should not be done indiscriminately.

Prostatic obstruction typifies all three types of anuria.

SOME PHASES OF UROLOGICAL DIAGNOSIS

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When I was placed on your program my intentions were to present something of a scientific nature, but having just recently had a series of cases in which the problems of urological diagnosis had previously been neglected with most regrettable results. I wish to present the following brief discussion of the general management in these cases as it is being practiced.

Urology had its inception in the early days of medical knowledge and perhaps was one of the first branches of medicine to begin to throw off the cloak of mystery which has always so impeded scientific progress. Calculus was recognized as a clinical entity and there were specially trained operators who cut for stone long before the medical profession knew anything whatsoever about the appendix, the Fallopian tubes, tonsils, etc., which offer such a fertile field for modern surgery.

An English surgeon, John Hunter (1700-1768), was one of the first to stand out prominently in urology. It is very evident that his private practice was largely genito-urinary in character. His students, who afterwards became famous and caused Eng-

lish surgery to eclipse the rest of the world, were particularly interested in genito-urinary surgery.

Blind allegiance to the teachings of Galen, which so shackled the spirit of progress for ten centuries, was slowly replaced by experimentation and observation and as we approach the dawn of modern medicine we find many instead of a few diligent searchers after the truth, the older ideas and theories, often mystic and absurd, being disproven. Yet it is surprising with all this change in the trend of thought of our present day profession, how tenaciously we adhere to the teachings of our kind and well meaning professors and blind ourselves to the possibilities offered by medical research, which is daily opening up new avenues to the mysteries that develop, and if allowed to go unchecked, thrives within the human organism to an extent that life may be blotted out.

Sad to say, however, although great strides have been made in the way of solution, we of the present day are to a great extent still traveling in the dark and some of us willfully so, as is so clearly shown by

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the case reports to follow. But not always is the medical man at fault. We always should do and generally do the best we can, and it has been said that in at least sixty percent, and probably more of the medical failures the cause lies not in the physician but in the patient. Such a condition is easily understood, but I believe the above percentage is entirely too high, speaking from a urological standpoint, if we except venereal diseases in which cases the percentage of failures are largely due to the patient.

Gonorrhea I believe to be the most neglected of all diseases the medical profession is called upon to treat and not only is it the most superficially treated but these patients are very poorly advised. I sincerely hope that I can impress upon you the importance of microscopical examination of smears taken from every case which presents himself with a urethral discharge. Nonspecific urethritis I find to be of frequent occurrence and may so resemble gonorrhea as to be impossible of correct diagnosis without the above mentioned procedure.

Inflammations and abnormalities of the verumontanum may be responsible for all the various disturbances of the sexual functions known to mankind, and this body should always be investigated in these cases. Verumontanitis, with or without urethral polypi in the male, and urethral polypi in the female, may account for the most marked disturbances of the nervous and mental function. These patients may become such neurotics as to be wholly unfit to carry on their business and yet their symptoms referable to the urinary tract be very slight with negative urinary findings. Burning frequency and slight tenesmus may be the only symptoms referable to the urinary tract and with negative urinary findings the true underlying cause of the nervous phenomena may go undiagnosed or as is usually the case improperly diagnosed.

Pyelitis is perhaps the most frequent of all urological conditions, may exist from early infancy, has a strong tendency to lie dormant with an occasional acute exacerbation and oftentimes is a forerunner of and predisposes to ureteral stricture, calculus formation and recurrence, malignancy, pyonephrosis and all the destructive processes which contribute to our urological morbidity. All these cases are entitled to a thorough urological investigation to prove the efficacy of the various medical measures used in their treatment whether these may have been cystitis pills, lithiated sor-

ghum compound, alkalization urotropin, hexylresorcinol or any other preparation the medical profession may find it seemingly wise to administer. And after all these may have been given, we should remember that urinary antiseptics, with a possible exception of hexylresorcinol, which is yet young, have been lauded alike legitimately and fraudulently filled with promise by the facile pen of advertising writers, have been stripped of much of their vaunted glory by the test of critical investigators. We should let it be a wholesome lesson to those of us in whom great expectations are so easily awakened; after all there is still a surprisingly large percentage who will derive their only permanent and lasting benefit from renal lavage.

I want here to say just a word about cystitis. During the past three years I have not had a single case of true cystitis uncomplicated, and I believe that about 95 percent of the generally diagnosed cystitis cases are in reality pyelitis with a secondary cystitis superimposed.

The following series of cases are presented as evidence of the importance of some of the above mentioned admonitions. Please bear in mind that these cases are not being fully reported but only previous findings, advice and treatment, as well as actual urological findings will be presented.

Case 1. A young man who noticed a morning drop grayish in color about nine months ago, at which time he presented himself to a physician in Texas who diagnosed his case as being one of gonorrheal urethritis without having made the necessary smear, etc. He was placed on treatment without obtaining results, and he noticed a gradual loss of sexual power. He seldom had an erection and when he attempted intercourse, ejaculation was premature, with only a partial erection and sexual relations at home were unsatisfactory. On presenting himself to me for treatment a smear showed only non-specific organisms present. Endoscopic examination showed an inflamed verumontanum with granulations around the utricle and a polyp developing on the apex. Removal of this followed by two topical applications to the verumontanum completely restored his sexual powers, so that he now enjoys perfect relations as often as he desires, and we now find his verumontanum to be normal. In this case the wife had a severe leucorrhoea, from which he had probably contracted his nonspecific urethritis and his previous advice could have resulted in some very unhappy home relations as well as divorce.

Case 2. A young man reported to his physician four years ago, presenting himself for diagnosis and treatment because of a urethral discharge which had developed a short time following marriage. His physician did not make a smear but told him that he had gonorrhea, and the patient immediately started treatment as well as divorce proceedings. The urethritis presented only very mild symptoms, but improvement was not very satisfactory. After a short time on treatment

while firing an engine for the Southern Pacific, he suddenly developed an acute attack of pain in his left testicle and penis. He was taken to the hospital and treated for about one week. He did not develop an epididymitis or other complications, and being relieved of his pain left the hospital at the end of that time. From then until a few months ago, when he reported to me, he had an occasional pain in the left side and back, never severe enough to confine him to bed, and a persistent though mild urethritis. Presuming his slight discharge to be due to gonorrhea, and wishing to get it cured since he was again contemplating matrimony, he reported to me for treatment. A smear showed pus, moderate amount, and numerous nonspecific organisms. The urine contained a large amount of pus and cystoscopy was done which disclosed an edematous bulging left ureteral orifice, spouting pus, and surrounded with an area of inflammation. A catheter passed into this orifice about three centimeters where it met an impassable obstruction. X-ray showed the obstructing calculus situated in very close proximity to the bladder, and the extensive damage that has been done by the calculus. It is of course only a matter of conjecture as to what might have been the end result in this case had a urethral smear been made four years ago when his trouble first began.

Case 3. A woman, age fifty-six, who consulted her physician three years ago, at which time a diagnosis of inflammation of the bladder neck was made and she was treated by means of irrigations which she used at home. Her chief complaint was frequency and a feeling of weakness in the bladder region. There was a large amount of pus and bacteria in the urine and cystoscopy showed a markedly inflamed nodular right ureteral orifice. X-ray disclosed a calculus in the right kidney pelvis and a decided hydro-pyonephrosis on the same side, as well as a double pelvis in the left kidney. What may have been her result if properly diagnosed three years ago is again a matter of conjecture.

Case 4. A nurse who has had three operations for pain in the right abdomen. At the first her appendix was removed, at the second some fibroids from the uterus, and at the third her fallopian tubes. X-ray in her case with pyelograms tell the story. There was a very small left kidney on which I regret that I do not have a pyelogram, but the intravenous phenol-sulphon-phthalein appearance time here was two and one-half minutes with only eight percent output in thirty minutes. On the right we found a very much enlarged hydro-nephrotic kidney displaced almost into the pelvis and a double renal pelvis one anterior to the other; intravenous phenol-sulphon-phthalein appearance time three and one-half minutes with forty percent output in thirty minutes.

Case 5. Referred by Dr. Harper of Globe, showed a small left kidney with a congenitally malformed renal pelvis, giving an intravenous phenol-sulphon-phthalein appearance time of four minutes, with only a trace present in thirty minutes.

Case 6. A woman, age thirty-six, whose chief complaint was incontinence of urine, tenesmus and hematuria. Duration six years. Previously treated by three physicians in Oklahoma, three in Missouri and one in Kansas City. One of the doctors in Missouri scraped her bladder out in her own home. Of importance in her history is that eight years ago she contracted syphilis from her husband and was given three doses of neosalvarsan at the time. Four months later she gave birth to a stillborn child at full term. I was

compelled to do cystoscopy under spinal anesthesia because the patient during the past six years of suffering has become a drug addict and cannot cooperate well. I found a small contracted bladder, an ulcer in the fundus from which bleeding was so profuse that cystoscopy had to be abandoned. Her blood Wassermann was four plus and she has been sent to the referring doctor (Adams of Globe) for the proper treatment.

Case 7. A nurse, age forty-five, who was told that she had pulmonary tuberculosis in 1914, and came to Tucson in 1917 for same, never having been compelled to quit work and having felt fine until January 23rd, 1925, when she was awakened at four a. m. by a severe attack of pain in her left upper abdominal quadrant, associated with frequency, burning and pain in the bladder. Nausea and vomiting, fever 105½, duration seven days, diagnosed by her attending physician as renal calculus. Two weeks later was told that she had endocarditis by another physician. The above attack was duplicated March 17th, at which time I first saw her. She had a fever of 105.6, negative urinary findings, chills, nausea and vomiting, etc. The duration of the attack was ten days and cystoscopy was done March 31st, showing a normal bladder, cultures from each renal pelvis negative. X-ray showed normal kidney outline and pelvis on each side, but decided downward displacement of the right kidney, presumably by the enlarged lobe of the liver which comes down into the bony pelvis, and of the left kidney by the enlarged spleen. Ureterograms showed a sharp curve in the upper left but no definite kink. For the past nine months she has noticed a bronzing of the skin and enlargement of the abdomen. A diagnosis of Banti's disease was made in her case.

Case 8. Had an attack of acute pain in her right abdomen two years ago, at which time her physician made a diagnosis of appendicitis and advised an operation, which was refused. Her second attack, June, 1924, at which time a diagnosis of appendicitis was again made and operation refused. Her third attack in December, 1924, was diagnosed appendicitis and was changed to renal calculus a short time after at Topeka, Kansas, following x-ray. Operation was advised but she was induced to come to St. Mary's Hospital, Tucson, by her sister who is a Nun there, and she entered March of this year. The first x-ray showed the relative size and position of the stone. Numerous attempts to pass by the stone with catheters and dilators failed. A Bransford Lewis dilator was passed up to the stone and the ureter below it dilated thoroughly. When the dilator was pressed against the stone it seemed to give a quick jerk like it might have slipped up, but on further pressure could not be made to go further up the ureter. X-ray showed the dilator apparently grasping the stone and same pulled down somewhat. The next showed it pulled down to the ureteral orifice, where a great deal of pull was required to dilate the orifice sufficiently to permit the dilator and stone to come through. The next showed the stone as it was grasped in the dilator and showed that it could not have been more perfectly placed, demonstrating the degree of luck to which we sometimes fall heir.

Case 9. The case of this series is one which I would have you follow closely, since he has sought medical advice in many of our medical centers and in the light of our present day knowledge, his case turns the finger of reproach so forcibly toward us that we cannot help but feel the shame that must rest upon us who have accepted the common protection afforded us by the Hippocratic oath and who have been so taught to re-

spect and practice its implied moral obligation. A young man, age thirty-three, married, one child. First seen by me October 21, 1924, because following a severe attack of hematuria clotting in the bladder had produced a complete retention. Past history: Six years ago (then aged twenty-seven) he had pain in his left lower chest for two day, followed five days later by a severe pain in his left kidney region which required morphine for relief.

Hematuria moderate amount and duration of the attack two days. Diagnosed renal calculus by a physician in New York City. He then had a five-month interval free of symptoms, at the end of which time the above attack was duplicated with pain less severe. Since then he has had two attacks yearly the same as above except pain progressively less severe and hematuria progressively more marked. He had a physician with him with most of the attacks. In June, 1924, five and one-half years after the first attack, he consulted a physician in New York City during one of them and was given urotropin and kalax water. In July he consulted another physician in New York City and was given morphine. In August he consulted a physician in Harrisburg, Pennsylvania, who when he was given the symptom complex, stated that he would rather examine his lungs than his kidneys and accordingly did a sputum examination with negative findings. That same month he consulted two physicians in Philadelphia who x-rayed and examined his chest, told him he had pulmonary tuberculosis with sympathetic involvement of his left kidney. They advised him to come west and take life easy, adding that when the lungs cleared up the kidney would do likewise. They then advised him very emphatically against having cystoscopy or any other form of genito-urinary treatment, and especially against surgical intervention. A doctor in Chicago associated with the company by whom he was employed looked his x-rays over the week following and agreed with the above advice. Accordingly to Tucson he and his family came.

Cystoscopy October 22nd, 1924, cultures from

each kidney subsequently were negative, intravenous phenol-sulphon-phthalein right kidney appeared in three minutes and gave sixty-five percent in one hour. From the left it appeared in five minutes and gave only a trace in one hour. Pyelogram on the right side showed a normal kidney outline and pelvis. X-ray with compression on the left side showed a greatly enlarged kidney outline with a small nodule at the lower pole and when injected showed the typical elongated finger like obliterated calyces.

At operation a greatly enlarged hypernephromatous kidney was removed which on section showed the very small amount of normal kidney tissue that remains as well as the nodule which was pushing out at the lower pole in the previous picture. He did have some pulmonary tuberculosis, and five months later showed what is apparently a destructive lesion of the bony pelvis involving the ischium with apparent complete destruction of same including the spine. There is a moth-eaten appearance in the head of the femur. Since this is a destructive rather than a proliferative lesion, it was interpreted as that of a tuberculous process from an x-ray standpoint.

It is with apologies that I offer this very poorly prepared and mostly at random paper. I presumed to indulge your time and attention because of no outstanding features of urological diagnosis here presented and without intent or attempt to impress you with evident or implied possession of more than ordinary skill in this particular. These cases, as you can readily see, presented no unusually difficult problems, but were easy of solution as most neglected cases are. If this brief and incomplete review of these cases suggests a careful consideration of the genito-urinary tract in all similar ones, I will feel that it has well served its purpose.

NEPHRITIS

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The following disjointed remarks are mostly a review of current literature. When we consider the mechanism and function of the kidney and realize that the structural unit of urine formation consists of glomerulus and tubule and the human kidney contains in the neighborhood of two million such units, we then realize that we have a marvelous and delicately constructed organ. It eliminates the larger amount of waste products of the body and considering the abuse we give our bodies, it is no wonder that we have diseases of the kidney.

We are not dealing with the subject of nephritis because of any new ideas especially, but because it is a disease so prevalent and the tendency to chronicity needs re-

viewing that we may give proper attention to management.

There are two main classifications: acute and chronic; two points are stressed by Monro in writing of the clinical varieties of nephritis. One is that a great many cases which come under observation under the guise of acute, or at least subacute, nephritis, turn out to be exacerbations of an underlying chronic disease. The other is that of those patients who appear to recover, a certain proportion will come under notice later on, in the terminal stage of chronic nephritis. They may have more than one acute attack before they reach this stage, and during several or many intervening years they may have regarded themselves as perfectly healthy persons.

Moschcowitz suggests a clinical pathological classification of nephritis. This classification does not, however, seem to be of any particular value in clearing up the confusion which exists in the minds of clinicians and pathologists in regard to the classification of kidney disease. Mosenthal says: "Three very different factors may be regarded as shaping the disease we are pleased to call nephritis. These are: (1) Degenerative changes affecting principally the tubules of the kidney which have been termed the nephroses; (2) inflammatory changes involving a part or all of the renal structure; (3) renal insufficiency which develops in its pure form in the uncomplicated arteriosclerotic kidney.

In considering these three factors it becomes very evident that the kidney is only a cog in the wheel of the clinical picture of this malady. The outstanding feature of the whole situation is that renal insufficiency and its sequellae form a clinical symptom complex, of which the effects and signs may be judged with some degree of precision, while the role played by degenerative and inflammatory changes remains an enigma. This is due, in large part, to the fact that the former is a condition whose cause is localized in the kidney, while degeneration and inflammation can not be regarded as purely renal affections, but must be looked upon as constitutional states in which every tissue in the body is involved.

When speaking of acute toxic nephritis we have in mind a condition caused by the elimination of toxins through the kidney and not the invasion of the organisms themselves. The causative agent, however, may also reach the kidney and produce lesions. Chemical agents such as mercury, turpentine, arsenic, also poisons sometimes formed during pregnancy, may produce acute lesions in the kidney.

We are all familiar with the common sequellae of nephritis, accompanying some acute disease as diphtheria, scarlet fever, acute tonsillitis, etc. There has been a feeling among certain workers that bacteria have an affinity for certain organs.

Bumpus and Meisser have recovered streptococcus viridans from the teeth and tonsils of certain patients with nephritis and found that these organisms upon injection into rabbits produced lesions in the rabbits' kidneys. They considered that the infections in the kidney in man may come from foci of infection elsewhere in the body with organisms which have a special affinity for the urinary tract.

Chronic nephritis may follow an acute

nephritis or any disease, acute or chronic, that the human body is heir to, but usually is caused by some low grade infection or toxemia. Epstein, as a result of four years of clinical experience, is more convinced than ever that nephritis is a metabolic disease characterized by definite changes in the protein and lipid content of the blood serum, and that edema during renal disease is extrarenal in origin and due to the lowered osmotic pressures of the blood, resulting from the reduced amount of colloid. It is interesting to note that there is now a growing impression that tubular nephritis associated with generalized edema is not nephritis at all; that kidney impairment in these cases is merely part of a general intoxication or a metabolic disturbance. It is perfectly easy to believe this if we believe the theory as to the edema and if this be true, how many times has the patient been made to suffer by treatment directed at nephritis when we should have been assisting in eliminating the causative agents.

The intradermal salt solution test has proved a valuable guide in the edema cases, according to a very interesting article by Aldrich & McCling, page 1425, A. M. A., 1924. The absorption time of the saline solution is much slower than in normal cases, the lower limit in normal children over one year of age being 60 minutes.

Technic of test: "Two-tenths cc. of an 0.8 per cent aqueous solution of sodium chlorid is injected intracutaneously under aseptic precautions. Duplicate injections are made about 2 cm. apart either in the forearm or in the leg, or in both. In the forearm the flexor surface is used, and in the leg either the inner surface of the calf or the lateral side of the anterior surface of the leg. The needle is inserted sufficiently superficially so that the lumen is visible through the skin. The end point of the disappearance time of the elevation is determined by very light palpation unassisted by inspection, since color changes seen about the point of injection may cause confusion."

Conclusions of this article are; (1) This test is a valuable method of determining the immediate prognosis in such cases and shows changes earlier than are shown by any other means with which we are familiar; (2) it is an aid in directing the therapeutic management of these cases; (3) these results seem to substantiate the theories that the tissues in this type of case are active in the development of edema. We wish to emphasize that this is not a renal function test, although increase and decrease in urinary output tend to follow similar changes in the disappearance time.

The question as to whether nephritis is preceded or followed by hypertension is very well answered under current comment as follows:

"Since the days of Richard Bright, the relation between renal disease and arterial blood pressure has been a subject of discussion. There are numerous indications that structural changes in the kidneys cannot be regarded as the sole cause of arterial hypertension. The latter condition often exists without any demonstrable anatomic renal defects; and, conversely, kidney impairment is not invariably attended with augmentation of the blood pressure. Sometimes, however, it is argued that examination of the urine or even histologic observation of the kidneys at necropsy may not always reveal a renal defect; and thus the discussion continues from one decade to another. One might expect that if the gradual rise of blood pressure frequently noted in the course of chronic glomerulo-nephritis were due to progressive atrophy of renal tissue, as has been asserted, experimental reduction of the kidney mass to the point of actual insufficiency for the usual excretory functions would bring about hypertension. Attempts to demonstrate such an outcome in animals have failed in the hands of Anderson at the University of Minnesota. Removal or destruction of as much as 70 per cent of the kidney tissue of rabbits did not produce hypertension, even when prolonged renal insufficiency resulted. By inference, then, Anderson concludes, the atrophy of renal tissue in chronic glomerulonephritis is not the cause of the accompanying hypertension.

Although it is pretty well established that hypertension exists without chronic nephritis, there are still some teachers of medicine who consider that a chronic nephritis is always present in these cases. Kylin reports that hypertension may occur quite independent of chronic nephritis and considers that the cause of these cases of hypertension has not as yet been determined.

As we can have hypertension without nephritis, and as only that form of nephritis is accompanied by hypertension that is caused by a toxemia or infection, might we not conclude that it is due in all instances to a toxemia?

Regarding the treatment of acute and

chronic nephritis. In acute cases where we have a suppression of urine; the injection of adrenalin into the pelvis of the kidneys will oftentimes be followed by a generous output of urine and may change what appears to be a moribund case to convalescence. Bleeding is an important method for rapidly removing toxins accumulated through renal insufficiency.

The use of calcium chloride by mouth or intravenously for cases with a great deal of edema is advocated. Uremic coma is caused by acid intoxication and may be relieved by sodium bicarbonate. The salt free diet need not be mentioned here as it has possibly been overestimated, but judgment should be used and in far advanced cases sodium chloride should be restricted.

Dr. Sansum of Santa Barbara has written a number of articles on diet in nephritis and calls attention to the fact that acidity of the body to the faintest degree is incompatible with life, and yet we consume what foods we please and the body preserves its slight alkaline balance by excreting the excess of the acid ash by means of the kidneys. Many cases of potential hypertension-nephritis cases should consume a minimum amount of the acid producing foods, viz; eggs, haddock and pie, beef, chicken, pork, rabbit, oysters, and oatmeal, and taking amount desired of the neutral foods, viz; butter, corn starch, cream, lard, sugar; also of the alkali-producing foods such as vegetables, nuts, fruits and sweet milk.

Conclusions: Realizing the delicate structure of the kidney and the many cases of nephritis in elderly people let us then guide our people in their manner of living and help avoid the results from dissipation ere it is too late.

INTRA-OCULAR HEMORRHAGE

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In discussing the subject of intra-ocular hemorrhage, it is not the purpose of the essayist to go into all the details, but merely to familiarize his hearers with the more important phases of the question. The outstanding symptom of this condition is the sudden onset of impaired vision, usually without marked pain or inflammatory reaction. The subject immediately divides itself into two broad classes. First, that class of patients with frank evidence of sclerotic vessels, usually in those of more advanced age. Second, hemorrhage occurring at an earlier period of life, from youth

to middle age, in which there may or may not be frank evidence of diseased blood vessels.

The first class with which we are all quite familiar, a condition which really is dominated by the corroding influence of time and is a part of a general state of arteriosclerosis, may be illustrated by one case report. A male, aged 70 years, suffered sudden loss of sight followed by glaucomatous symptoms. No view of the fundus was possible. Pipe stem arteries, weak heart sounds, urine low in specific gravity, with trace of albumin. Treatment being of

no avail the globe was enucleated on account of the pain. Sections of the eye showed frank evidence of arteriosclerosis. The friends of the patient were warned that the eye merely reflected a general condition which would likely terminate fatally. He died six months later from cerebral hemorrhage.

The second class, the condition we are chiefly concerned with, is that which is observed in young and middle-aged persons. The chief symptom is sudden loss of sight without pain or redness of the eye. Upon attempting to examine the fundus our view is completely, or at least materially obscured. In the more severe cases, in the course of from two to six weeks, the vitreous clears sufficiently to admit of a more or less accurate observation. This clearing and restitution of sight may persist indefinitely, for a few months to years, or it may never recur, leaving more or less permanent damage. This class may be of three types: Choroidal hemorrhages in the course of the development of choroiditis in which there are acute exacerbations with more or less clouding of the vitreous; subhyaloid hemorrhage coming on suddenly, greatly impairing vision and subject to recurrence; third, the so-called recurrent intra-ocular hemorrhage of those below middle life.

Of the first subdivision, we have a pretty fair idea of the clinical picture, course and prognosis. Careful ophthalmic and laboratory examinations reveal much information. At least it is definitely a hemorrhage of the uveal circulation.

Subhyaloid and recurrent hemorrhage in the retina and vitreous commands our more careful consideration. To state that it is a hemorrhage of adolescence is not strictly correct as it has been observed in persons later in life. Finnoff reports one patient aged 47 years. The greater number of reported cases have been in males. In the female it is suggested that menstruation acts as a safe guard. The condition is really a syndrome and not a disease entity. The outstanding observers who have contributed to our knowledge of this subject are: Von Graefe who in 1854 first described the condition; Earles classical paper in 1882, gives a detailed description of his observation; Noll, in 1908, was the first to suggest tuberculosis as a cause; this last suggestion has been gone into much more in detail from 1915 to 1922 by Jackson and Finnoff's exhaustive studies; more recently Zentmayer has brought forth the theory of an endocrine disturbance accounting for many of the cases.

Hiram Woods, in making his report on this subject before a meeting of the A. M. A. stated that "we know very little about recurrent hemorrhage." By a review of the literature since that time, certain definite advances have been made which may help to solve the problem. The very uncertainty of its etiology well illustrates the necessity of closely linking ophthalmology with general medicine. Modern methods demand that when an eye condition is not accounted for by the state of the eye, it becomes our duty to note everything wrong anywhere in the body. We should be keenly alive to all deviations from the normal anywhere in the economy.

The chief symptom is sudden loss of sight with no pain or redness of the eye or at least only slight congestion. There may be a moderate photophobia and lachrymation. If a subhyaloid hemorrhage has occurred, despite some vitreous opacities we can usually observe the hemorrhage as a dependent or hammock-shaped mass. If a hemorrhage into the retina and vitreous has occurred, our observation is hampered by the complete hiding of the fundus by the clouding of the media. In the course of several days, to possibly two weeks, sufficient of the opacities will have cleared to permit of an ophthalmoscopic examination.

We observe small and larger, more or less rounded, regular in form, fairly well defined fresh hemorrhages, not flame-shaped, but they may be fringed at the ends. These hemorrhages are frequently along the course of the retinal vessels out toward the periphery. Adjacent to the hemorrhages there may be some yellowish white areas of exudate. Later whitish glistening patches are observed. The veins are usually engorged, tortuous and dark color. In many places the perivascular spaces along the arteries are prominent.

The exact source of the hemorrhage in some cases may be in doubt. In a proportion of cases it is quite likely that the choroidal circulation is involved, others are pure retinal venous. In a percentage of cases where the hemorrhage is not within the range of the ophthalmoscope it is quite likely well anterior even coming from the ciliary region.

The exact source of the hemorrhage and much of the pathology of these cases is surrounded by a great deal of uncertainty owing to the lack of opportunity of histologic examination.

In view of this uncertain state of our knowledge concerning recurrent intra-ocular hemorrhage it is incumbent upon us

to make a careful study of each case coming under observation. Accurate histories, particularly as to the history of recurrent attacks, intestinal disturbances, bleeders disease, tuberculosis, syphilis, etc., should be recorded. In examining such eyes vision is to be noted. Consideration of the transparency of the vitreous, and if cloudy, the character and location of the opacities. The size, color, and caliber of the retinal vessels are to be considered, determining whether the condition be venous or arterial. Note the character and location of hemorrhages, pigment and exudate in the retina. The hemorrhages may be subhyaloid, into the retina or diffused throughout the vitreous. Frequent records of the study of these conditions should be made. Both eyes should be examined.

A general physical examination should be conducted, investigating the myocardium, general or focal infections, blood pressure, coagulation time and bacterial study of the blood together with urinary tests. Special

attention should be given to a consideration of the endocrines, as suggested by Zentmayer, the size and shape of the sella. This is of particular interest in view of Wilmer's added statement that he has noted recurrent hemorrhages in both athletic young men and effeminate youths. In the latter it is more resistant to treatment and more destructive in outcome. There is a strong tendency to consider tuberculosis as the causative factor. Indeed, there is much evidence favoring this conclusion as undoubtedly it explains a large percentage of the cases. Jackson and Finnoff's contributions are convincing evidence of this. Undoubtedly a modest percentage of cases are due to focal infections. Redding in a recent number of the *Atlantic Medical Journal* reports three such cases, all of which cleared up following drainage of the sinuses. It may be, perchance, that in some cases any one of these three theories may be the independent factor or one may act in conjunction with the other.

CONSERVATIVE OBSTETRICS

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The word conservative may be defined as "a desire, or an effort, to continue the established order of things."

The established order of obstetrics since Eve raised Cain has been to "let nature alone," "hands off," "don't interfere," "somehow the parturient woman will get through." And usually she does get through "somehow," but at what a cost! For generations past our teachers have taught this "do-nothing-plan" in obstetrics, until the question arises: "Has the practice of obstetrics advanced and kept abreast of the other branches of medicine and surgery?"

Not many years past many physicians were "conservative" about the removal of a diseased appendix; but surgery has advanced far beyond that point today. But even today many physicians will allow a poor mother to labor for hours trying to overcome an occipito-posterior presentation. Their teachers taught them, as all teachers have taught, that anterior rotation "usually takes place either at the brim, in the cavity, or on the pelvic floor." This is true. But when teaching this fact emphasize that word "usually," and then remember the many hours of unnecessary pain which the poor mother endures before anterior rota-

tion takes place; remember also her exhausted condition even if she finally completes the delivery alone; remember the pelvic floor lacerations; and remember the 15% fetal mortality; and do not forget that sometimes the fetal head becomes impacted with the occiput to the back, and without assistance both mother and child would perish. Keep these facts in mind; then ask yourself if you are going to do your duty, and change that position as soon as you find sufficient dilatation, or are you going to be a "conservative," and do nothing, or attempt to do something after many long hours of intense suffering? Or are you going to do the worst thing possible—give the poor woman a "shot" of pituitrin? What is more harmful than a malposition and a "shot" of pituitrin? Did you ever try to change the position of the child with the uterus firmly contracted, and find to your dismay that it will not relax even under an anesthetic?

In the use of pituitrin, be conservative. It is criminal to give pituitrin when there is a mechanical obstruction to the delivery of the child. And it is criminal to permit the mother to labor against that mechanical obstruction when her attending physician is able to remove the obstruction with-

out endangering either the mother or the child. If he is able to change the malposition to a normal position, it is his duty to do so. Even in a normal position if the delivery proves unusually long and difficult, and the attending physician is able to assist the delivery with forceps, it is his duty to do so. If the attending physician finds the membranes ruptured and an arm protruding from the cervix, and he is able to do a podalic version, it is his duty to do so. If he is not able to do a podalic version, or a cephalic version, or anything else, he had better send for help, or give up the case. This is a time when "watchful waiting" will never do. There is too much "watchful waiting" in the practice of obstetrics. That is what the writer is kicking about. Neither would we have you go to the other extreme and turn all babies and pull them out by the feet, after the method of Potter. DeLee refers to Potter as "the greatest turner in all the world." But his fetal mortality is too high. Do not be an extremist. Do not be a conservative. But be awake, and alert, and of real assistance to the parturient woman. Ease her pain, shorten her labor if unduly prolonged, assist her when she needs help, protect her against infection, lacerations, and hemorrhage. Earn your fee, or turn the case over to the Mexican mid-wife who hangs a picture of a "saint" on the wall, and dances around the room, and bows, and sings:

"San Gonzalo de mi amor,
Con un paso crusa el mar.
Hagame este milagro Santo,
Y le prometo bailar."

Translated into English she sings:

"Saint Gonzalo of my love,
With one step you cross the sea.
Do me this favor, Saint,
And I promise to dance to thee."

Of course this helps the one in labor "a right smart."

The quick action of pituitrin is well illustrated by the story of the colored woman who came to show me her young Sambo. After telling her that Sambo was a fine boy I said: "And how did you get along, Mandy?" And she replied: "Why Doc, I just thought I would die. I was just like that ole bullfrog my ole man found in a prospec hole." "How was that, Mandy?" "Why, my ole man went out a-walkin' one day, and he look down in a prospec hole, and there was a great big bullfrog. And Sam said to him: 'What ar' you a-doin' down there, Mr. Bullfrog?' And the bullfrog said: 'Well, I just fell in this hole,

and I just can't get out. Won't you help me out?' And Sam said: 'Why don't you hop out?' And the bullfrog said: 'I have just hopped, and hopped, and I just can't hop out.' And Sam said: 'I'm not a-goin' to help you out. If I did you'd just fall back in again.' And he came on home, But that nite his head hurt him, and the next mornin' a-fore breakfast he put on his hat, and I said: 'Where you all a-goin' Sambo?' And he said: 'I's a-goin to help that pore ole bullfrog outin that hole, a-fore he starves to def.' Just a-fore Sam got to that hole he came face to face with that bullfrog, right out in the sunshine, and Sam said: 'Good mornin' Mr. Bullfrog. I thot I left you in that prospec hole.' 'Yes sir.' 'An' you said you couldn't get out.' 'Yes, sir,' said the frog, 'but a snake fell in that hole.' Well, Doc, when this here colored chile was a-bornin' I just thot I was in a hole, and I couldn't get out. I sed to Doc Ed: 'Doc, I's stuck. I just can't do no more. I's just a-goin' to die, I is.' An' Doc sed: 'No, Mandy, you ain't a-goin' to die.' An' he walked over to the table an' picked up that hyperdermic, and came over and jabbed that needle right in my arm. An' in about five minutes, I just let out one scream: 'Glory Alleluia!' An' I doubled up and delivered."

It was a good thing for Mandy and young Sambo that there was no serious mechanical obstruction in the way of that delivery. Had it been otherwise that "shot" of pituitrin might have resulted disastrously for both.

Pituitrin is an efficient means of quickly checking hemorrhage and should be at hand in a hypodermic syringe ready for use at the beginning of the third stage of labor. But remember that during the second stage of labor pituitrin should not be given as a "test of labor." A "test of labor" should determine what the woman is able to accomplish, not what she is able to endure. Pituitrin brings about a "test of endurance."

Lack of progress for a considerable time is the predominant indication for interference. The writer believes that the more frequent use of forceps will lower the general fetal mortality; but that depends upon the kind of man who uses the forceps.

DeLee very wisely remarks: "Forceps are used too often by men who do not know how to apply them, and not often enough by those who do. When all has been said, the fact remains that it is the man behind the forceps that makes it good or bad."

TUBERCULOSIS OF THE CERVICAL AND THORACIC GLANDS

W. W. BRITTON, M. D.
EL PASO, TEXAS

Glandular tuberculosis is preeminently an infection which takes place prior to the establishment of cellular immunity.

The tubercle bacilli enter the system through the respiratory tract and alimentary canal. When they enter an organism which has not previously come in contact with them, or which has not attained a high degree of specific cellular defense, the bacilli pass through mucous membrane readily and, unless destroyed by the lymph elements, are taken to the glands where they set up foci of infection. They may penetrate intestinal walls and be carried to the liver, lymphatic glands, or through the thoracic duct into the blood stream. Tubercle bacilli injected into the rectum have been found within a few days in the mediastinal glands. They seem to find their way to the peribronchial glands, no matter how they enter the body. The bacilli usually pass through the glands in childhood because of the peculiar characteristics of the glandular structure in early life. The canals of the lymphatic glands in a child are wide and also lack specific cellular defense. Because of the fact that the glands bear such a prominent part in early infection, tuberculosis is looked upon as being primarily a disease of the lymphatic system, and from these lymphatics dissemination of the bacilli to the various parts of the body takes place.

The glands commonly infected are the cervical, which drain the nasopharynx, gums and tonsils, the mesenteric and the peribronchial. Griffith states that forty-three percent of the cases of tuberculous infection of the cervical glands in children are of bovine origin.

Early infection does not receive the attention that it should. The fact is that it does not produce symptoms which we have learned to recognize until it reaches a fair degree of activity. The infected glands may not go to caseation, but become fibroid. Again they may become acute and inflamed and the center become necrotic and break down, discharging their contents either externally or into the surrounding tissue. It will be found that we do not commonly find glandular tuberculosis in adults, because the infection takes place in children, the greater percent under five years of age. This is before the es-

tablishment of cellular defense, and from this we can see that tuberculosis of the glands gradually assumes less and less importance as infection with resultant cellular defense becomes more general, until finally, in adults, glandular tuberculosis is comparatively infrequent.

The diagnosis of this form of tuberculosis is of great importance in childhood. Any of the glands of the body may be affected, but the cervical and bronchial show infection most frequently.

Tuberculosis of the cervical glands may exist for years. The glands may be the size of peas or as large as walnuts. When active, they are often swollen and painful. It is sometimes difficult to make a positive diagnosis although if there are painful, swollen glands massed together, accompanied by toxemia, anemia, low blood pressure and underweight, tuberculosis should be strongly suspected; then if tuberculin is given subcutaneously, evidence may be obtained through a focal or general reaction. If the glands suppurate, there is swelling, pain, chills, fever, night sweats, loss of appetite, and a gradual loss of weight, although there may be subnormal temperature in the mornings. The glands may discharge for months until the contents of many have been entirely evacuated. Usually there is a successive involvement of the glands in the cervical chain, one after another enlarging, discharging, healing and breaking down until practically all of the glands become infected.

The diagnosis of tuberculous glands is readily made by surgical removal and pathological examination of sections or of the caseous material. Syphilis is eliminated by the Wassermann test. Lymphosarcoma usually has a rapid enlargement of groups of glands, but pathological examinations may be necessary. In Hodgkin's disease, the enlargement of glands is usually more general over the body, the glands are not as likely to be matted together and the tuberculin reaction is not positive. Hodgkin's is not so often found in children as in young adults.

Diagnosis of active tuberculosis of the bronchial glands is not always easy. The glands are deep seated and the symptoms produced by them are not definite. The

child may show the same signs as those suffering from tuberculosis elsewhere. They may have a brassy cough of paroxysmal type. The x-ray will show shadows which are very suggestive of tuberculous infection. A child apparently in good health may become over-fatigued by its customary play; may be restless, irritable, have loss of appetite, with slowly progressing anemia and impaired nutrition. As enlarged glands encroach upon bronchi, pressure symptoms may develop. A sense of oppression, or actual pain in the chest is experienced, with some dyspnea, especially on exertion, and a dry spasmodic cough. The appearance of these children sometimes indicates delicate health. Some are tall for their age and under-nourished. The posture is stooped, with bowed shoulders, prominent scapulae and clavicular depressions well marked. On percussion you may be able to detect dullness over the vertebral area as low as the fifth and sixth dorsal spine. On auscultation, bronchial breathing can be heard over the hilus areas.

Harbits found in two hundred and seventy-five autopsies in children, that forty-two percent of them were positive for tuberculosis.

Differential diagnosis, as with the cervical glands; syphilis can be eliminated by the Wasserman test; in lymphosarcoma there will be metastatic manifestations; in suspected Hodgkin's disease, the tuberculin test will clear up.

The following case in an adult may be of interest:

Mr. B., age 39, suffered pain in both axillae, with swelling, fever, chills, night sweats, cough, violent pain, glands of the neck enlarged, loss of weight in two years from 168 pounds to 115. Glands of the neck began to swell in 1923. On auscultation, a few moist rales in the apex of right lung, great amount of dullness over the mediastinal area, indicating great enlargement of mediastinal glands. Wassermann negative. Glands opened and drained a number of times, no improvement. Later, operated on by Dr. F. P. Miller for removal of axillary glands, the glands removed varying in size from a small marble to as large as a goose egg. Laboratory examination showed giant cells and large masses of cheesy particles. The field of operation healed, but no general improvement was ever observed. On the day of operation I aspirated one quart of serous fluid from the right pleural space and continued to remove the same amount every two week for two months. The patient continued to decline and finally died about four or five months after the operation.

Treatment: Is still in the experimental stage. Some advise the use of tuberculin

and use such agents as possible to stimulate appetite, improve digestion and increase weight and, as much as possible, the patient should live outside in fresh air and have a reasonable amount of sunshine. Exposure of the affected areas to the direct rays of the sun, and to artificial sunlight such as the Alpine lamp, has been used rather extensively the past few years with good success; if used cautiously, along with the other methods of treatment mentioned, it is certainly advisable.

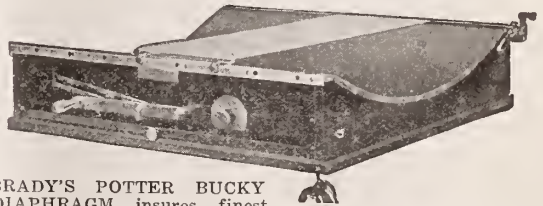
If physicians, in dealing with children, especially from the age of 8 to 15 years, find them to be under-nourished and undeveloped, and make careful examination, no doubt many would show dullness and shadows of enlarged glands due to tuberculous infection. If these children could receive proper care and be instructed as to how they should live during their development, we would not have so many come to us later in life, usually not knowing that they have a tuberculous infection until well advanced pulmonary tuberculosis has developed.

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THE NEXT SOUTHWEST MEETING

The next meeting of the Medical & Surgical Association of the Southwest will be held in El Paso, either during the month of November or early in December, the exact dates not yet having been set by the Board of Trustees.

The Program Committee has been appointed by the president, Dr. H. H. Stark, of El Paso. This Committee consists of Dr. Willis W. Waite (Chairman), First National Bank Building, El Paso; Dr. Samuel H. Watson, Tucson, Ariz.; Dr. J. R. Van Atta, Albuquerque, N. M.

Any member of the Association who desires to present a paper before this meeting should communicate either with the Chairman, Dr. W. W. Waite, or with the member of the committee from his state (Arizona or New Mexico, as the case may be). The number of papers acceptable is limited and applications for places on the program should be sent in promptly.

INDUSTRIAL HERNIA

The following recommendations by the American Railway Association were presented in the form of a resolution to the Arizona State Medical Association in Bisbee, last April, by Dr. C. R. Swackhamer, seconded by Dr. W. O. Sweek, and carried.

1. Render proper compensation for all cases of true traumatic hernia due to direct violence.

2. Make a physical examination of all applicants for positions in industry, no matter in which capacity; such examina-

tions will determine the fact whether or not a hernia was present at the time of examination.

3. Any case of hernia developing in the course of duty, incident to the man's daily work, should be treated as a disease due to special anatomical weakness on the part of the individual, for which the company is in no way responsible. If it is considered wise under certain circumstances to recognize any moral responsibility, let it be on an economic or humane basis. This moral obligation should be understood to be strictly limited to such employees who had been found apparently free from hernia at the time of previous physical examination.

FOOT AND MOUTH DISEASE

The Congress of the United States has provided a fund of \$75,000 to send specialists to Europe to make a thorough study of foot and mouth disease. The men elected to carry on the investigations are Dr. P. K. Olitzky, of the Rockefeller Institute, whose work on relapsing fever is well known; Dr. Jacob Traum of the University of California, and Dr. Harry K. Schoening of the Pathological Division, Bureau of Animal Industry, United States Bureau of Agriculture.

It seemed to many that the refusal, on the part of the Government to permit investigation of the foot and mouth disease, by experimentation, at the time of the California epidemic, was short-sighted and ill-advised. It is to be hoped that some practical and valuable results will come from these studies to be made abroad.

The Dietetic Value of Gelatine Receives High Recognition

The edition (6th) of "Diet in Health and Disease" by Dr. Julius Friedenwald and Dr. John Ruhrah, published by W. B. Saunders Company, Philadelphia, contains the following tribute to the value of Gelatine in feeding infants and children.

"JACOBI in 1879 suggested the use of Gelatine in infant feeding, and it has been used some ever since, but only recently has the real value of Gelatine in the diet been made more widely known. It is very useful in rendering milk mixtures more digestible, preventing both gastric and intestinal indigestion by preventing the large hard curds. Where the appetite is poor, the addition of Gelatine makes the milk more palatable for some children. It is of value in infants who regurgitate or vomit their food, in diarrhea particularly where there is putrefaction. It is useful where gas is formed, either in the stomach or intestines, and in fermentative conditions in general. It is useful in preventing colic in some babies, and in the breast fed may be given in solution just before feeding. In infants who are constipated and who have large hard stools which do not adhere to the napkin, the addition of Gelatine to the formula usually corrects the difficulty. It is of great value in celiac disease, not only in supplying additional much needed food, but in correcting the accompanying indigestion. In malnutrition the addition of Gelatine to the dietary is of great value, as it is in those who have lost weight through operations, fever, or other illnesses. It has also been suggested in scurvy."

Knox Sparkling Gelatine—highest quality for health—is the purest form of plain granulated Gelatine, produced by the most scientific methods, and under constant bacteriological and chemical laboratory control. It contains no artificial flavoring—no sweetening.

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No one would accuse this great organization of sending forth this message for the medical profession, or even for altruistic purposes. It means a matter of profit to this great Insurance Company to prolong human life, and their statistical department, the most comprehensive in the world, has learned that these fake cures shorten life and, therefore, take money from them. The lesson taught by these advertisements is the old one which the medical profession has been trying to "get over" to the public, for many years. We will welcome this assistance from a great corporation which deals in hard and incontrovertible facts.

PERSONALS

DR. AND MRS. ROBT. W. CRAIG, of Phoenix, sailed the first of July for the Hawaiian Islands, to be gone the balance of the summer.

DR. VICTOR RANDOLPH, of Phoenix, returned the latter part of July from a vacation of several weeks, spent chiefly in San Francisco and vicinity.

DR. FRANK J. MILLOY, of Phoenix, left July 15th for a month's special work in the middle west, chiefly at the Mayo Clinic.

DR. AND MRS. JOHN WIX THOMAS, of Phoenix, left July 25th for a vacation of six weeks, to be spent on the Pacific Coast.

DR. W. WARNER WATKINS and family, of Phoenix, left July 30th for a vacation of six weeks to be spent in touring the coast district from Los Angeles to Vancouver, B. C.

DR. JEREMIAH METZGER, of Tucson, is spending the summer in Switzerland, chiefly in the study of heliotherapy.

MARRIAGE OF DR. YATER'S DAUGHTER

Announcements have been received of the marriage of Miss Xanna C. Yater, daughter of Dr. C. M. Yater, of Roswell, N. M., the secretary of the New Mexico Medical Society and Associate Editor of *Southwestern Medicine*.

The groom is Royce M. Lansford, a business man of Roswell, and Mr. and Mrs. Lansford will make their home in Roswell.

DR. H. A. MILLER, of Clovis, N. M., has been appointed the fifth member of the State Board of Public Welfare, for New Mexico, filling a vacancy that has existed for some time. Dr. Miller is well known to the medical profession of New Mexico, being president of the State Medical Society two years ago.



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The necessity is emphasized by the facts in file, No. 03596. The following was received from our local attorneys, while the case was in process of litigation.

"I beg to advise that today Mrs., the wife of your assured in this case, called me by phone and advised that her husband, Dr., had died on March 24th.

The case is now pending on demurrer and it is not likely that much if anything will ever be done with it, although of course they can go ahead and have the administrator or executor substituted."

After a lapse of six months the widow was served with a summons and in advising us, said among other things:—

"The Medical Protective Co.,
Fort Wayne, Ind.

Gentlemen:

I suppose they think that my husband, Dr., left a lot of money. The whole thing does not amount to Five Thousand Dollars, and I have three small children to raise."

The Doctor dead and the defense handicapped because he is not present to prove the propriety of his treatment, the widow financially unable to pay for own defense and endure a judgment; the raising and educating of three children dependent upon the wisdom of the Doctor in carrying a Medical Protective Contract.

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LUNG ABSCESS. Analysis of 227 cases, including 100 previously reported. The importance in etiology of operations upon the upper respiratory tract is even more striking in the last 127 than in the first 100. Tonsillectomy was responsible for 49 cases and teeth extraction for 21. In all, 113 cases or 49.7% were traceable to aspiration of infected material from the upper respiratory tract. In 76 or 33.4% the onset was insidious and the cause undetermined.

There are five cardinal indications in diagnosis: (1) Cough and Explosive Expectoration; the latter is uncommon and occurred in only ten percent (2) Foul Breath and Foul Sputum; this is quite common but there are rare cases in which they are absent and their absence does not exclude pulmonary abscess. (3) Dullness or Percussion over a circumscribed area; this is the most common single sign on physical examination, other signs being very variable. (4) Elastic Tissue in the Sputum. (5) Roentgen Ray Examination. This is indispensable, though some caution must be observed in interpreting films taken at one sitting not to mistake a partially resolved pneumonia process for abscess. Important conclusions regarding operability may be drawn from the radiographs. The site and extent of the process are better defined by roentgen ray than by physical examination. Exploratory puncture is unnecessary and dangerous and should be condemned as a diagnostic procedure for establishing the presence of a pulmonary abscess.

Certain Aspects of Pulmonary Abscess, from an Analysis of 227 Cases. Frederick T. Lord, M. D., Boston, Mass. The Boston Med. & Surg. Jour., Vol. 192, p. 785 (Apr. 23, 1925).

PYELONEPHRITIS. Non-tuberculous pyelonephritis in an otherwise normal kidney tends to get well. Recurring attacks should always be investigated by pyelograms. Recurring attacks in kidneys otherwise normal point to some focal infection. Pain is not a constant or reliable symptom; a kidney may become entirely destroyed without localized pain. The urinary sediment should be watched a long time after subsidence of symptoms.

In looking for foci of infection, it is a mistake to exclude the teeth because apical abscesses are not demonstrated by x-ray (Bumpus and Meisser). Devitalized teeth should be removed. Symptoms of stone passing down ureter may be produced by a plug of mucus; with the ureter temporarily blocked, the urine may be clear as it comes from the normal kidney.

In chronic pyelonephritis the diagnosis can only be made by careful examination of catheter specimen of urine and by pyelograms and ureterograms.

Pyelonephritis. Arthur H. Crosbia. Boston Med. & Surg. Jour., Vol. 192, p. 893 (May 7, 1925).

OSSIFICATION OF PERONEAL TENDON. Case is cited of ossification within the tendon of the peroneal at its attachment to the base of the fifth metatarsal. This was shown by x-ray as two calcified areas, looking like sesamoid bones. Removal of these by splitting the tendon resulted in complete recovery. When removed, body appeared as a hard, semi-cartilaginous mass about the size of a bean.

Ossification of the Peroneal Tendon or Sesamoid, in the Region of Its Attachment at the Base of the Fifth Metatarsal. Louis A. O. Goddu, Ph. G., M. D., Boston, Mass. The Boston Med. & Surg. Jour., Vol 192, p. 899 (May 7, 1925).

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ENLARGED THYMUS.—A decided enlargement of the thymus exists in a large number of newborn infants and while it causes no trouble in many, in a few of them it may cause trouble or even prove fatal. The direct symptoms described by Lange, quoted in a recent paper by Pfahler, are "inability to cry loudly, crowing respirations when crying, noisy respirations during sleep, difficulty in nursing, twitching, fretfulness and other nervous symptoms, vomiting or regurgitation, feeble respiration, grunting as though the child wants to have a stool, slow or retarded development, failure to gain in weight in spite of proper dietary measures, inanition, obesity, cough or hiccough."

When the diagnosis of a pathologically enlarged thymus has been made, radiation is the best treatment as the thymus is the most susceptible structure in the body to radiation. The author now uses radium in preference to x-ray, for the sake of more accurate application. He uses 100 mgm. in four capsules of 25 mgm. each, placed one inch apart, and held three-fourths inch from the skin by a block of pith wood. A filter of 1 mm. of brass is used and the distant side of the radium covered with lead to prevent exposure from that direction. Relief is usually surprisingly prompt. One application of ten hours is usually sufficient, but occasionally this has to be repeated in 6 or 8 weeks. This amount of radiation produces no change in the skin.

Enlarged Thymus; Differential Diagnosis and Radium Treatment. G. W. Grier, Pittsburgh, Pa. The Atlantic Med. Jour., May, 1925, p. 502.

VEGETAL BRONCHITIS. The chief etiologic factor in vegetal bronchitis is the aspiration into the lower air passages of peanut kernels, nut kernels, beans, watermelon seeds, maize apple, orange or other fruit seeds or pulp; any other inspired vegetal substance may cause it. With a history of choking or gagging while eating, followed by wheezing or cough is diagnostic of a foreign body having entered the tracheobronchial tree.

Diagnosis is by roentgen ray evidence of obstructive emphysema or obstructive atelectasis, followed by drowned lung; physical signs of bronchial obstruction; wheezing or the audible slap heard at the open mouth; history of choking or gagging.

In discussion, Dr. Willis F. Manges (Philadelphia) stated that the sign of obstructive emphysema was discovered by Dr. Iglauder in 1911 but not published. It is as positive a diagnosis from the x-ray standpoint as if the foreign body were actually casting a shadow. The mechanics are constant. If the obstruction is complete on inspiration there is emphysema of the particular bronchial distribution. If it is in a small branch only a small portion of the lung is involved. Every conceivable combination of atelectasis and emphysema have been encountered.

Arachidic and Other Forms of Vegetal Bronchitis. Chevelier Jackson, Gabriel Tucker and Louis H. Clerf, Philadelphia, Pa., The Atlantic Med. Jour., May, 1925, p. 506.

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SOUTHWESTERN MEDICINE

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ARIZONA STATE MEDICAL ASSOCIATION
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CANCER—AND THE VALUE OF RADIATION IN MALIGNANCIES OF THE BREAST AND UTERUS

J. W. CATHCART, M. D., EL PASO, TEXAS

Cancer has been termed "mankind's most sinister menace to health and happiness" and statistics show that the death rate has increased 36.5% from 1900 to 1921. Hoffman now estimates the deaths from cancer in the world at one-half million annually. In the United States, one out of every ten persons over forty years of age die of cancer. England, Wales, Northern and Central Europe are also increasing in about the same proportion as the United States.

There seems to be no difference between the death rate of the white and colored races of this country, but the rate is decidedly higher in the Northern states, and notwithstanding the almost incredible improvement in human longevity and general health, there has been so marked an increase in the cancer death rate, that this now stands out as the greatest medical problem of the present day.

The etiology of cancer still remains unsolved. Extensive research of a highly scientific character, is being carried on by numerous experimentors along many different lines. The work of Dr. Maud Slye who has been breeding mice for twenty years, following Mendel's law of heredity, (and who has the records of more generations of mice than there are records of the human family since history began), has enabled her to produce strains that will die 100% of cancer, and also strains that will be 100% cancer free. It is interesting to note here that in 5,000 cases of spontaneous cancer in mice, not one developed in the uterus. Miss Slye's idea is that by proper breeding of the human family for three generations, cancer could be eliminated.

Leitch believes it to be an irritant, and by means of hot coal tar applied to rabbits' ears, has been able to produce skin cancers.

Others believe it directly traceable to diet and manner of living, and cite as an example, that during the time in England when the consumption of butcher's meat was doubled, cancer increased four fold.

Hoffan, who has studied the mortality statistics from every angle, states that "cancer is distinctly a disease of civilized countries, and its increasing frequency is, in a large measure no doubt, the direct result of faulty habits and abnormalities of life, induced by the complex conditions of the modern environments, favored chiefly by food abundance, nervous strain and the numerous by-products of material prosperity."

Again, others of equal prominence have attributed cancer to embryological rests, endocrine disturbances, traumatism, thermic, actinic and chemical agents, excessive carbohydrates, parasites, and, last but not least, even dear old aspirin has been accused.

The old fashioned corset so long in vogue among women of civilized countries may have contributed to cancer of the breast, since this disease is practically unknown among Japanese women, nor has an authentic case ever been observed among pure native Indian women in either North or South America, where the corset is unknown.

With this introduction, we now come to one of the principle purposes of this paper, which is to emphasize the value of radiation in the treatment of breast and uterine malignancies. In the light of our present knowledge, it would seem that this agent should and will assume a vastly more important role than it has heretofore been accorded. No less an authority than John G. Clark, of Philadelphia, recently made the

statement that "to discard or fail to use radiation as an adjunct to surgical measures, in the face of the available statistics, should lay the operator open to a charge of criminal negligence."

EXAMINATION

Examination of a patient with symptoms referable to the breast consists, first, of a carefully taken history and general physical examination, with laboratory tests. In examining the breast, the patient is stripped to the waist, placed in a supine position on a table with the hands above the head. Then, standing at the head of the table, a careful inspection is made for any evidence of tumor. Frequently a tumor will be noted which is not visible with the patient in any other position. Retraction of the nipple, dimpling of the skin, and changes in color are noted. Bloodgood states that "in this position he has never observed a small benign tumor to bulge, and up to the present time, all such tumors visible on inspection have been malignant, and the bulging has been the only sign differentiating them from the benign."

Palpation, which is the principal diagnostic measure, must be carefully, systematically and skilfully done, since great care is necessary to differentiate between a possible tumor, and a lumpy breast which may be due to increased consistency from congestion. This latter condition is not permanent and should gradually disappear under careful handling of the patient, if allowed sufficient time for the examination.

In the diagnosis of cancer of the uterus, the history is of the utmost importance. Any unusual discharge or irregularity in the menses, or discharge between periods, in a woman past thirty years of age, is to be regarded as suspicious, and should be carefully investigated, especially "spotting". After the establishment of the menopause, "spotting" is almost pathognomonic of carcinoma. Profuse flooding near the menopause, at regular intervals, which occur more frequently than formerly, but in which there is no dribbling in the interval, is more likely to be caused by a fibroid condition than by malignancy, and is quickly relieved by the application of radium to the uterine canal, or deep x-ray externally, or a combination of both. It is not improbable that prompt relief of this condition by this method will often prevent carcinoma.

It is quite true that many of the irregularities of the menopause are not due to malignancies, yet statistics show that one out of every eight women who reach the age of forty, die of cancer, the uterus ranking first in location. A thorough examination should therefore be insisted upon in

every case presenting symptoms that may be regarded as suspicious. If an ulcer or irritated granulation is found in or on the cervix that bleeds freely to manipulation, and of which the diagnosis is uncertain, a carefully selected section should be at once removed for pathological examination, although in a well developed case of carcinoma of the cervix, the removal of a section for microscopical purposes is contraindicated, as there is an increased danger of spreading the disease, whenever lymph and blood-vessels are severed.

It is a lamentable fact that far too many cases reach an advanced stage where, although medical treatment has been rendered, there has been no physical examination. The failure of women to seek proper medical advice is, no doubt, due to a lack of education. When we stop to think that during the past twenty years, through a campaign of education, the mortality from tuberculosis has been reduced 30%, while that from cancer has increased more than 30% and more people in the United States today are dying from cancer than from tuberculosis, we realize that the public must be aroused to the seriousness of this situation, and that it remains with the medical profession to educate the laity properly, if we are to bring cancer cases, especially those of the breast and uterus, under treatment during the early stages of the disease, when the largest number of permanent cures may be effected.

Having excluded the possibility of a benign tumor, and made a diagnosis of breast malignancy, it becomes necessary to determine the character and extent of the lesion in order to apply the type of treatment which offers the most permanent result.

If the tumor is confined to the breast, is freely movable on the chest and shows only metastasis to the axillary nodes on the affected side, it should be considered a primary operable case, and a thorough course of radiation should be given, followed in three to four weeks by surgical removal of the breast and axillary glands, which, in turn, should be followed in from two to three weeks by another course of radiation, thus obtaining the best possible result.

In a large series of primary operable tumors, followed over a period of three and four years after operation, it has been shown that where surgery alone was used, 20% are still living; where post-operative radiation was used, 30% are still living, and where pre and post-operative radiation were used, 45% are still living. In view of these statistics, the surgeon who has the welfare of his patient at heart cannot do other than

insist upon pre and post-operative radiation in every case of breast carcinoma.

If, however, upon examination the case falls under one of the following headings, as outlined by Dr. Burton J. Lee of the Memorial Hospital, New York, it is to be considered inoperable.

A. Fixation of the breast tumor itself to the chest wall.

B. Involvement of the supraclavicular nodes (the first one usually palpable being that directly behind the inner end of the clavicle).

C. Definite involvement of the opposite axillary nodes.

D. Diffuse subcutaneous nodules.

E. Diffuse inflammatory carcinoma involving a considerable skin area.

F. Chest metastasis, pleural or mediastinal.

G. More remote metastasis.

Surgical removal of a primary tumor that has metastasized is frequently followed by a rapid growth of the metastasis, while, on the other hand, radiation of an inoperable tumor seems to produce something needed in the system by nature to overcome the aberrant growth and often times not only the primary growth is inhibited, but also the metastases are retarded in their development.

While this paper is not intended to be of a technical nature, but is more of a plea for pre and post-operative radiation in all operable breast carcinomas, and radiation alone in inoperable cases, it may not be amiss to describe the technic employed:

180 K. V. at 50 c.m. distance, 5 ma., for one hour, filtered through $\frac{1}{2}$ mm. of copper and 1 mm. of aluminum, administered to each of four ports, axilla, lateral chest, supraclavicular area and anteriorly over the breast.

In some instances, however, we use 140 K. V. with 4 mm. of aluminum, 38 c.m. skin distance, 5 M. A. for 18 minutes each port.

All patients undergoing radiation are kept on a basic alkaline diet.

CARCINOMA OF THE FUNDUS

A gradual increasing persistent pussy discharge, with prolongation of the menses in a woman of cancer age, whose history is negative, with no suggestion of retained products of conception, should be regarded as suspicious of carcinoma of the fundus.

The carcinomas of the fundus, which constitute about 3% of the carcinomas of the uterus, because of their high resistance to radiation and tendency to late metastasis, should, if the patient is surgically fit, be subjected to hysterectomy. If the discharge of pus is too profuse, radium or aniline dyes should be used as a preliminary to hysterectomy.

For cancers of the cervix, which constitute 97% of the malignancies of the uterus, radium and deep x-ray are to be used without surgery or cautery.

If we review the evidence collected by Robert B. Greenough, who heads the Committee appointed by the American College of Surgeons on the Treatment of Malignant Diseases with Radium and X-ray, we will find that the Committee after analyzing the records from a large number of clinics in Boston, Chicago, New York, Philadelphia, Toronto, Baltimore, Cleveland and Scranton, reported that in:

Early or borderline cases, radiation had 33 1-3% living at the end of the five year period, with a primary mortality of 1.6% and surgery had 25% living at the end of a five year period with a primary mortality of 20%.

There were no cures by cautery alone.

H. V. James Heyman, of Stockholm, using practically the same technic for ten years, had 39.1% of all patients treated still living and free from symptoms, after five years. Of the operable or border line cases, 58.3% living and free from symptoms after five years. Inoperable cases, 16.6% living and free from symptoms after five years.

It is possible to go on piling up statistics of a similar character from many institutions. It would seem, however, that the foregoing are from such an authoritative source that they should constitute the accepted procedure of today.

The technic of radiation and the type of equipment now in use have been very greatly improved over that in vogue at the time the records for the above statistics were being made, and it is but reasonable to expect that the cases being treated today, will show five years from now a much more favorable percentage in the column free from symptoms.

The technic we follow in treating carcinoma of the cervix is to have the bowel well emptied and after an antiseptic douche, to place the patient in the knee-chest posture, using a Sims speculum with a small light attached, and insert a 50 milligram tube of radium, in a silver capsule, into the cervical canal, or, if this is impossible, into the cancerous mass, packing the rectum and bladder well away from the radium by means of a vaginal gauze pack, leaving the radium in place for 15 hours. This technic is repeated every two or three days until from 3,000 to 6,000 milligram-hours of radium are administered. If possible, we work our way up into the uterine canal and radiate the broad ligaments through the body of the uterus; otherwise, large hard rubber capsules containing the radium are placed in position on

either side of the cervix and the broad ligaments are radiated in that way. In some of the cauliflower types, radium needles are inserted into the mass.

Following the administration of radium. Treatments of 200,000 volt x-ray are given through $\frac{1}{2}$ mm. of copper and 1 mm. of aluminum, at a distance of 50 mm. The dose is determined after having measured the patient with calipers. 85% of an erythema dose is administered to all parts of the pelvis. As a general rule only the anterior and posterior ports are used.

CONCLUSION

1. To combat the increasing death rate from cancer, it has been definitely established that reliance must be placed more and more upon the use of radium and x-ray, surgery alone being inadequate to hold in check the increasing mortality.

2. The etiology of cancer remains unsolved and we are therefore unable to adopt specific preventive measures.

3. Early diagnosis is essential to successful treatment.

4. Primary operable carcinoma of the breast should receive a course of x-ray treatment from three to four weeks prior to removal surgically, and this should be followed by another course of x-ray treatment in two or three weeks.

5. Inoperable carcinoma of the breast should be given the benefit of x-ray and radium treatments, without any attempt to remove the primary lesion.

6. Carcinomas of the fundus are to be considered as surgical lesions.

7. Carcinomas of the cervix at any and all stages will give the best results when treated by radium and x-ray.

DISCUSSION

DR. A. R. HATCHER, Wellington, Kans., (Opening): It was a great surprise to me to be called upon to open the discussion of Dr. Cathcart's splendid paper, and I consider it quite a compliment to be asked to do so as I am not altogether a radiologist, but am a sort of combination radiologist and surgeon.

The doctor has covered the subject so well that there is scarcely anything left to discuss so far as I am concerned, as I heartily agree with the statements he has made in every respect.

In a discussion with Dr. Miller this morning, we talked over some surgical cases and spoke about the choice between surgery and radiation in carcinoma of the cervix. My experience from handling this type of case from both angles, has absolutely convinced me (and I think I could not make it any stronger than this) that if my wife was suffering from carcinoma of the cervix, the best surgeon in the world could not operate, even if it was an operable case and so classified. (We have classifications, the operable cases, borderline and inoperable cases). I say this because I know that the surgical results in the best of hands for carcinoma of the cervix are not satisfactory. I have seen Dr. Wertheim in his clinic operate many carcinomas of the cervix, and I have seen him clinically diagnose

a case in a fairly young woman as what he termed a beginning carcinoma of the cervix and found it necessary to close the abdomen on account of the metastasis already present, yet in what he termed "early carcinoma of the cervix."

The process of examination, as Dr. Cathcart has covered it, is very important, especially the history and getting the cancer located, or diagnosed early. There is no harm in treating a primary lesion, in fact that is when it should be treated, but an early diagnosis is most important.

The selection of the cases by men who are fair-minded and whether the case should receive only radium after operation, or whether it should receive pre and post-operative radiation, and the selection of those cases where radium only should be used, is very important.

DR. P. S. KAADT, Clovis, N. M.: It might be interesting in this connection to note that Dr. John W. Nuzum, of Chicago, for the past six years has done a great deal of experimenting and has isolated a micrococcus which he thinks is responsible for this disease. His work has received favorable comment from Dr. Mayo and Dr. A. J. Ochsner, of Chicago. Whether this will change the treatment or methods of treatment, remains to be seen.

DR. J. W. KINSINGER, Roswell: For a good many years the surgeons who operated cancer cases usually got the case in the latter stage of the disease. When I began practicing medicine, it was almost impossible, with the facilities we had, to diagnose cancer, especially cancer of the uterus, and in the cases we operated we did so to prolong life. It was not with the intention of making a cure, as we considered cancer of the uterus in those days a fatal disease, and the great surgeons with whom we came in contact, operated to prolong life over a certain period, which was usually not very long, and they considered if they prolonged life for one year, it was worthy of the effort. Now, with our laboratory facilities and other facilities we have to make early diagnosis, it is wonderful to see the marked improvement. When I look at the cases living after a certain period of time, especially cases of cancer of the uterus, which was not the case when I began practicing medicine several (I will not say how many) years ago, I feel that there has been a wonderful progress in the treatment of malignant disease since my entrance in the profession.

Dr. Cathcart is to be congratulated upon the splendid paper he has given us. I do not believe the general practitioner knows the results are so good. I knew they were beginning to be very much better in recent years since the combination of radiation and deep x-ray was begun. I believe the first paper I ever heard of any importance was read by a doctor from Kansas City. Since that time we have had many splendid papers, nearly as good as Dr. Cathcart's, and the result has been uniformly the same, and I think from year to year there will be more improvement in the treatment and cure and prolongation of life in cancer cases, from the fact that radium is getting cheaper. We have radium available at near points and at much less expense to the poor people than formerly. Then, too, the x-rays have been wonderfully improved, and there will probably be further improvements made in the years to come. Therefore we have a fair prospect of cure, or if not cure, at least very much prolonged life, and while it is deplorable that the mortality is so great in these cases, I hope to see the day come soon when the mortality from cancer will be very materially reduced, and I believe the younger members of this society will see cancer perhaps eliminated as the Chicago doctor has set forth. I hope that this will be the case.

DR. H. A. INGALLS, Roswell: I have nothing

to add to Dr. Cathcart's paper. He always gives us something worth while and this paper is no exception, but is on a par with the excellent papers we have had from him in the past.

My observation in cancer cases has been that the mortality is greater in fairly young women than in those who have passed middle life.

I recall two cases of carcinoma of the cervix handled almost twenty years ago who are still living. They were women who were up about the age of menopause, around forty to forty-five years. I noticed when I was engaged in that work that the younger women from thirty to thirty-five years of age had recurrences and died very rapidly.

When Dr. Cathcart closes this discussion, I would like to have him tell us something about this phase and whether they still have the same mortality among the young that we formerly had, or whether they are responding equally well, to treatment, as those who are older in life.

DR. G. S. LUCKETT, Santa Fe, N. M.: From a public health standpoint, we are particularly interested in cancer because it offers a challenge to the health officer due to its relative position in the mortality tables.

I think there is still some question as to whether there has been so great an increase in cancer mortality as would appear from the statistics. Some of the men who have been studying these statistics are rather inclined to think that part of it is due to better diagnosis, and after having handled death certificates for the past four or five years, I am inclined to think that we cannot yet rely upon what the death certificate states as the cause of death. Be that as it may, there is no question but that cancer is taking a leading position today as the cause of mortality.

Dr. Cathcart spoke of the suggestion that the probable causes of the increase would be found in our present day civilization. I believe we ought to be careful in alleging any such cases, as they are merely guesses at best, and as scientific men, I think we want to try to get away as far as possible from guesses. It seems rather unlikely in the light of investigations that have been made on cancer, that changes in our environment are even largely responsible for the increase. The point I want especially to make is this—even if only 60% of these cases of cancer can be relieved, provided they come in the operable stage, that points to the health officer one method of attack on mortality. We cannot attack it through any of our ordinary methods of control, as we can in diphtheria, scarlet fever, etc. Our only resort is in the education of the public, in giving them such facts as these, and the best method of carrying these facts to the public is through the local physicians and the medical societies. During the last two or three years the State Bureau of Health has been cooperating with National Committee for the Control of Cancer and we have received the loan of their cancer films and have offered the use and distribution of the films to the local societies. The response has been fair, but not as good as it ought to be. If we are thoroughly convinced as physicians that these statistics are true, and that we can help to save our patients, then let us join together in carrying the education to the public.

DR. J. W. CATHCART, El Paso, Tex., (Closing): I want to thank the gentlemen for the discussion:

Dr. Hatcher spoke of Dr. Wertheim and his operation for carcinoma of the cervix. So far as I have been able to learn, in no case where the glands have been shown to be carcinomatous, has the patient ever been saved by a Wertheim operation.

Dr. Kaadt spoke of a micrococcus discovered by Dr. Nuzum, of Chicago, which is thought to be responsible for cancer. It may be that this is the etiological factor—perhaps it is only the media in which the micrococcus develops. It reminds me, however, of a statement I heard at the recent meeting of the Texas State Association. One of the men made the remark that we doctors were getting to be about as bad as the chiropractors, in that they attribute everything to nerve pressure, whereas we attribute to focal infection. Now may it not be possible that the infection takes place on a field developed by faulty metabolism and that we are dealing primarily with faulty metabolism rather than pure infection?

I am afraid that Dr. Kinsinger is a little too hopeful as to the improvement and progress in combating cancer. Statistics show about a 2% annual increase.

As to the question as to whether the statistics are correct or not, I know that statistics are liable to be fallible. Visit a surgical clinic and you will find numerous cures of the internist seeking relief. Visit the wards of the internist and you will find numerous surgical cures seeking relief. However, as cancer statistics are nearly all based on death reports it would seem that there should not be a great discrepancy. That the increased death rate is due to improved diagnostic ability seem improbable. While there is probably a marked improvement in the early diagnosis of cancer, as mentioned by Dr. Kinsinger, I cannot but believe that the men of 20 years ago were as accurate as those of today in the cause of death due to cancer of the breast and uterus.

Dr. Ingalls asks in regard to young women. Cancer is primarily a disease of old age. The longer you can keep a person young, the less cancer you will have. When a young person develops cancer, it is, however, just the same as when a young person develops tuberculosis. There is a lack of resistance in the body and the growth progresses rapidly. Carcinoma in women under thirty years of age may be expected to run a more rapid course than in older women.

Dr. Luckett raises a question as to the reliability of the statistics—a point that will probably never reach perfection. An interesting angle of the mortality statistics is developed by Hagerman of Kentucky, who claims 50 % of cures of breast carcinoma; Lee of New York claims only 20%. When you come to study the mortality statistics of New York, as compared with Kentucky, you will find that in New York they are losing 160 patients out of every one hundred thousand, while the statistics of Kentucky show 55 deaths out of every one hundred thousand. Now take the patients in New York, where the death rate is three times greater than that in Kentucky. What is the cause of the difference? Do they die of recurrence, or do they develop cancers? I cannot help but believe that our statistics are reasonably correct. I know there sometimes may be a question as to whether or not a patient has died from cancer, but I do not think there are enough of these cases to affect our statistics, for when we take the various types of cancer, such as of the lip, cancer of the tongue, and other growths that are readily diagnosed, we find these have increased in about the same relative proportion as the cases that are hard to diagnose.

There is one point, however, to be mentioned in connection with this increase that might have some bearing on statistics and that is the longer life period in civilized nations, cancer being primarily a diseases of old age, and more people naturally reaching the cancer age.

MUNICIPAL MILK CONTROL

JAMES R. SCOTT, M. D., PH. D., ALBUQUERQUE, NEW MEXICO

Control of the production and distribution of milk sold within a municipality is desirable for several reasons. In the first place, such control should result in the abolition of milk-borne disease, except possibly in isolated instances. In the second place, such control should guarantee to the consumer that he is receiving milk which contains a definite percentage of butter fat, is free from unnecessary dirt and foreign material, and does not contain an excessive number of bacteria. In the third place, such control places those engaged in producing and handling milk under such regulation by the health department of the municipality, that individuals known to be dangerous to the public health may be excluded from participation in this business. Finally, through the license system, municipal milk control contributes in a small measure toward the city financial budget.

Logically, the control of milk by a municipality takes its origin from an ordinance passed by the city commission or other governing body of the municipality. Such ordinance stipulates certain prerequisites before engaging in the dairy business. Most ordinances require an application to be filed by the dairyman before he engages in distributing milk. The purpose of this is twofold; first, to enable the health officer to know who is engaged in this business, thereby assisting him in inspecting, scoring and supervising the farms, stock, equipment and methods; secondly, it serves as a notification to the city clerk that such individual owes certain fees to the municipality.

Upon filing such an application, the farm, milk plant, or place of business should receive a thorough and adequate inspection either by the health officer or a sanitary inspector who has been trained in dairy work. The purpose of such inspection is to determine the sanitary conditions surrounding the herd, the presence of diseased cows in the herd, the adequacy of the milk handling equipment and, to some extent, a mental estimation of the reliability and character of the man who is at the head of the farm. While none of the various score cards used for scoring dairies have given any value, percentage or otherwise, to the character of the producer, it is particularly important to consider this point, especially with regard to persons about to start for the first time in the dairy business. As a result of this inspection, the health depart-

ment recommends favorably or adversely to the city clerk, after which a license may be issued.

The ordinances should contain certain standards for the milk itself. A minimum percentage for butter fat should be established, as well as a standard for solids not fat. Such standards should also be designated for cream, ice cream, and skim milk. A provision should be made declaring it illegal to sell those products which do not meet the established standards. In order that there may arise no question regarding the legal right of the health department to publish the results of the examinations of milk and of the scoring of the plant and equipment, provision should be included in the ordinance for the publication of results.

An adequate milk ordinance should contain several sections prescribing the specifications for construction and maintenance of the dairy barn, milk house, and insuring that the surroundings of these structures shall be maintained in a sanitary condition. Thus it becomes necessary to designate distances from the milk house or barn at which toilets, hog pens, chicken coops and similar structures must be erected. Here provision should be made for the drainage of corrals in which the cattle may be confined prior to milking. Here also should be incorporated standards of purity of the water used on the farm, especially that used for washing the milk utensils. Provision should be made for the removal of manure from the barn and the proper disposal of the same. The utensils which are required for the proper production of milk should be enumerated, such as the small-top milking pail, milk cooler, sterilizers for utensils and similar equipment.

The next important point to be covered by a dairy ordinance is the establishing of grades of milk, which can be produced and sold under such ordinance. When we come to examine the practise of various municipalities, we find considerable confusion in this respect. Some cities have established grades, which are designated by letters from the alphabet, as grade A, B, or C. These may be further subdivided, into grade A raw and grade A pasteurized. Other cities have been content with dividing milk into two classes, raw and pasteurized. In Albuquerque, we have provided for the production of certified, guaranteed, pasteurized and raw milk.

The ordinance should consider and define each of the classes of milk provided. If it provides for certified milk, a simple section can be incorporated in the ordinance, stating that "Certified Milk shall comply in all respects with the current specifications for certified milk adopted by the American Association of Medical Milk Commissions". As you doubtless know, this requires the appointment of a certified milk commission by the local county medical society, regular physical examinations of all employees, regular tuberculin testing of the herd, and numerous other specific and restrictive regulations. While the Albuquerque ordinance provides for the production of certified milk, no Bernalillo County dairyman has thus far possessed the moral courage to attempt the production of certified milk, although a considerable number have made preliminary investigations as to costs.

We have provided in the Albuquerque ordinance for the production and sale of "Guaranteed Milk". This provision was made for the express purpose of providing an advanced grade of milk for the accommodation of fastidious consumers. These requirements are somewhat less strict than those for certified milk, yet the product is of better quality than the ordinary raw milk. Guaranteed milk under the terms of the Albuquerque ordinance requires a special permit from the health officer. Before issuing such permit, the health officer must assure himself that the producing dairy shall have a minimum score on the standard dairy score card of 85 points. On delivery to the consumer, guaranteed milk must contain not to exceed 20,000 bacteria to the cubic centimeter. This is in contrast to a permissible 500,000 bacteria allowed in ordinary raw milk. All persons engaged in producing or handling guaranteed milk shall be subjected to a thorough physical examination every six months, and shall present a certificate of freedom from communicable disease and from the carrier state. Moreover it is provided that the health officer may at any time require the physical and laboratory examination of the holder of a health certificate, whom he may have reason to suspect has become afflicted with a communicable disease. No persons who have been shown by such examination to be afflicted with any communicable disease shall be permitted to work in any capacity connected with the production, sale or distribution of such guaranteed milk. All dairy cattle shall be proven free from bovine tuberculosis before admission to a herd producing guaranteed milk. All cattle shall be subjected to the tuberculin test at least annually, and all reacting cattle promptly re-

moved from the herd. Such guaranteed milk shall be immediately cooled to a temperature not to exceed 50 degrees, and must be maintained at or below this temperature. Guaranteed milk must be delivered to the consumer within 24 hours after being drawn from the cow. Guaranteed milk must be submitted to a bacterial examination weekly, and should the bacterial count at any time exceed 20,000 bacteria per cubic centimeter, the permit is immediately revoked. Guaranteed milk and guaranteed cream must be conspicuously and appropriately labelled. Sections also provide for pasteurized guaranteed milk and cream, although thus far, no producer of guaranteed milk in Albuquerque, has ever produced pasteurized guaranteed milk or cream.

For pasteurized milk, the producing dairy must score at least 70 points on the standard score card. The milk must be immediately cooled after being drawn from the cow, to a temperature not to exceed 65 degrees, and maintained at or below this point until delivered. Milk to be pasteurized shall have a bacterial count of not to exceed 500,000 bacteria before pasteurization, and not to exceed 50,000 after pasteurization. Provision shall be made to prevent the re-pasteurization of old pasteurized milk. Provision is made that pasteurized milk shall not be delivered to the consumer when it is more than 48 hours old. Each pasteurizing plant must be equipped with a self-registering device for recording the time and temperature attained in the pasteurizing process. Pasteurized milk shall be pasteurized by the holding process at a temperature of not less than 140 nor in excess of 150 for not less than thirty minutes. While the Albuquerque ordinance is defective in not requiring laboratory examinations to exclude persons suffering with communicable disease or the carrier state, the health department requires such certificates from all dairymen producing pasteurized milk, as a matter of policy, and so far has had no serious objections raised on this point. It is intended to include this provision when the time comes for making amendments to the ordinance.

A dairy which produces "Raw Milk" must score 75 on the standard dairy score card. Thus the producer of raw milk must attain a score higher by five percent than the producer of milk to be pasteurized. All cattle in such herd must be submitted to the tuberculin test at least annually. All employees must undergo an annual physical examination. Raw milk must be cooled to fifty degrees immediately after being drawn from the cow and held at or below this temperature until delivered. The bacterial

count must not exceed 500,000 to the cubic centimeter.

A general provision is made that milk from cows suffering from actinomycosis, foot-and-mouth disease, anthrax, contagious abortion, garget or inflamed udders, shall not be sold for human consumption within the city of Albuquerque. A further provision is to the effect that no dairy will be licensed to sell milk where any person living there transiently or permanently, is suffering from tuberculosis in any stage.

A final section carries the usual penalty clauses.

In summing up the requirements of a milk ordinance, we may say that it should provide for and define the requirements of the different classes of milk sold in the municipality; should provide for the inspection and grading of the methods and equipment used in producing milk; should exclude individuals ill with contagious diseases or carriers of infection from participation in the dairy business; should provide that the cows producing the milk are in sound health; and should provide for the publication of the scores made by the various dairies.

Naturally an ordinance which is as extensive in scope as in a dairy ordinance, should be revised and amended from time to time. To the careful student of the Albuquerque ordinance, there appear certain weaknesses and certain incongruities. I shall therefore mention but a few of these at the present time.

One of the most glaring defects is the requirement that raw milk, or milk that is to be pasteurized shall have a bacterial count of not to exceed 500,000 per cubic centimeter. At the time the ordinance was adopted, it was argued that with the long hot summer of Albuquerque, it would be impossible to even approximate the bacterial requirements of Eastern cities. After much discussion, a compromise was reached at 500,000. Many dairymen had demanded an even higher figure. With the passing of four years however, we find that over ninety percent of our dairies do not exceed 100,000 bacteria per cubic centimeter, that thirty percent are below 50,000, and that approximately ten percent of the dairies producing raw milk, seldom exceed the 20,000 limit, which was considered an exceptionally rigorous standard for our "Guaranteed Milk". When this ordinance comes to revision, these figures demand attention.

A second weakness in the present ordinance relates to the age of guaranteed and pasteurized milk. Guaranteed milk must not be sold later than 24 hours after its production, while pasteurized milk must be

sold within 48 hours after pasteurization.

However, there is no provision requiring the stamping of dates on the bottle caps, and from an administrative viewpoint, it becomes exceedingly difficult to ascertain the age of the milk.

A third weakness in the ordinance relates to the laboratory examinations of the milk itself. Under the terms of the ordinance, the examinations made by the department can be made in any laboratory approved by the health officer. In actual practice, we have had some difficulty, due to individual dairymen sending samples to commercial laboratories, in some instances even to laboratories outside the state. Under these circumstances, the bacterial counts of the health department laboratory and those made by the commercial laboratories never agree. We realize that absolute agreement is impossible, but all too often, the variations are much too great to be within the limits of experimental error.

It should be evident that milk shipped beyond the state and having aged in transit, should yield a higher bacterial count than that obtained in a laboratory within the city itself. Much to our surprise and chagrin, in the majority of instances the counts obtained by laboratories outside our state, range from eighty to ninety percent less than those obtained in our local laboratories. One can readily see the trouble caused the health department when, in the official bacterial counts published in the newspapers, dairy A is reported as having a bacterial count of 37,000. The morning and evening papers immediately carry an advertisement giving bacterial counts, taken at weekly intervals by a laboratory outside the state, wherein the bacterial count ranges from 1800 to 2400. This advertisement carries heavy type caption "For the Information of the Public". This is a difficult situation. We believe that the dairy ordinance should prescribe a remedy for this situation. Our thought is that when a milk producer becomes perturbed about the health department score, he should appeal to the health officer, permit the health department to select samples of his milk and send them to three different laboratories selected by the department, and accept the resulting counts, averaging them if necessary.

As time has passed, there has been more forcibly impressed upon the writer's mind the weakness of a system whereby bacteriological examinations of milk are made at infrequent intervals. The average dairy is submitted to a bacterial count two or three times a year. The bacterial counts are published in the papers the same number of

times. The public reads these counts, and is either satisfied with its particular dairyman or is dissatisfied and promptly changes to one whose count is more favorable. The count which is published however, is merely an index of the particular quart of milk which was examined. The count may be exceptionally high, due to some accident in the technic of producing milk, and give an unfavorable impression of a milk which is excellent on the other 364 days of the year. On the other hand, the work of collecting samples and examining them requires several days. It is not beyond reasonable doubt that the news circulates among dairymen that the health department is collecting samples. Some dairymen doubtless do take advantage of this fact and for a few days, until they know their milk has been sampled, take especial extra precautions with their milk, in order to obtain a high rating.

We know certain instances where this has occurred. The remedy is more frequent inspection and sampling. The application of this remedy is prevented at the present time by the small budgets granted health departments for their activities.

In the actual operation of municipal milk control, it is essential that the inspectors have a good personality, are above reproach morally, and are conscientious in details. Slipshod, careless inspection reacts unfavorably upon the dairyman and tends to encourage him in laxity of methods. The inspection should be strict and severe. When the inspection is completed, the defects found should be discussed with the dairyman, and assistance given him in the correction of these defects. Advice can frequently assist the dairyman who is planning a new milk house or other equipment, to build acceptably and avoid unnecessary expense. Friendly co-operation is the keynote of successful municipal milk control.

The state of New Mexico has made an enviable record in the control of certain communicable diseases, notably diphtheria, scarlet fever and septic sore throat. Glandular and bone tuberculosis are fairly rare in New Mexican children. We believe that municipal milk control may assist us to lower the rates for these diseases still further.

In our work with the native people, we find cow's milk is scarcely used by the Spanish-American. We are attempting to instruct them as to the advantages and benefits to their children from using good cow's milk, and believe it is the duty of every municipality in the state of New Mexico to safeguard the municipal milk supply, in order that we may assure the consumer of such milk that he is getting the food value

for which he pays, and that at the same time he is not ingesting the microorganisms of bovine tuberculosis, diphtheria, scarlet fever and septic sore throat.

DISCUSSION

DR. J. A. SMITH, Roswell, N. M., (Opening): Dr. Scott has given us a most excellent paper on one of the most important subjects we have before us. The keynote of his paper is the elimination of milk-borne diseases and that is the most important feature in the matter of municipal milk control.

In the past, we have often read of epidemics of typhoid and other infectious diseases that could be traced back along the routes of certain dairymen and the source of infection found in some carrier working in the dairy. In order to eliminate these diseases from being spread by the milk, thorough inspection of the employees, the milk barn, the milk house, the vessels used in handling and delivering the milk, and the methods used in handling the milk must be carried out. I think that the first is the inspection of the employees and persons handling the milk. They should have a thorough physical examination before being allowed to work with the milk in any way and be re-examined periodically. I make it a rule in Chaves county not to permit any one to handle milk who has an infectious disease of any kind, neither do I permit them to live in the house where infectious diseases exist and work with the milk.

The next step is to inspect the dairy herd and surroundings to ascertain if the cows are healthy and the condition in which they are kept. If there is a doubt about any cow being in good health a competent veterinarian should be called in to examine the cow and eliminate it from the herd if found not to be in good health. The cows should be kept clean; the udder should be washed thoroughly just before milking and the milking done with dry hands. After the inspection of the herd comes the inspection of the milk barn. It should be well lighted and ventilated and have the manure cleaned away at least every twenty-four hours and kept free from flies and dust. Flies are filthy and carry many bacteria and if they get into the milk we are going to have more or less infection in the milk. The milk house should be kept scrupulously clean and all milk vessels should be cleaned and sterilized before being used. There are many methods used in sterilizing milk vessels but my choice above all is steam; however the chlorine preparations are extensively used and some of them are very satisfactory.

Milk is a fine culture medium for bacteria; therefore, it should be cooled as soon as it is brought from the milk barn to the milk house so as to check the growth of bacteria.

The employees around the milk house should be taught how to handle the milk vessels so as not to infect them after they are sterilized. They should be taught not to let their hands come in contact with the inside or too near the top of the vessel. Disinfection of the milk vessels is very important, as they are distributed in so many different homes and the manner in which they are cared for in the different homes makes it very easy for them to be contaminated, so that if not properly sterilized disease could be easily conveyed in the milk. It is better to have a bottling and capping machine so that the employees do not have to handle the bottles or caps. The milk should be kept at a low temperature all the time from the time it is drawn from the cow until it is delivered to the customer.

The milk should be drawn from the cow as nearly sterile as possible and handled from that time until delivered with as much care to avoid contamination as a surgeon uses in handling his instruments and

dressings from the time they are sterilized for an operation until the operation is completed.

While it is necessary to have laws regulating dairies and it occasionally becomes necessary to resort to the courts to enforce these laws, I think the best way to get results is by educating the dairymen. The majority of them will make an effort to improve their methods when you explain to them the reason for making the change in the way they are doing things. Then publishing the score of all the dairies has a good effect in getting improvements in their methods.

DR. J. W. KINSINGER, Roswell, N. M.: I think there is just as much to say in regard to contamination of milk in the homes after delivery, as before delivery. There is great danger, at least it seems so to me, in this respect and it would seem that some provision should be made in the ordinance as to the care of milk after it reaches the home. We frequently see a pitcher or bottle of milk uncovered on the table after a meal, which stays there for some time before it is put back again for use at another time. Of course this is only a suggestion on my part, but I really think there should be such a clause in the ordinance.

DR. M. K. WYLDER, Albuquerque, N. M.: I am certainly very glad Dr. Scott has spoken upon this subject. I believe it is a good time for it and that there is no subject of more far-reaching importance. Dr. Scott has performed wonders with the milk situation in Albuquerque, and the way in which he has gone about it commands our admiration. The dairymen feel that he is not a detective going around watching them, but rather that he is for them and is willing and anxious to show them how to get a better milk supply.

I think with Dr. Kinsinger that there is danger of contamination after delivery, just the same as there is before delivery, but believe the better way of bringing relief in this condition is by educating the public, pointing out the dangers of a polluted milk supply, and showing the advantages of a pure milk supply, which should be insisted upon. With a little education along these lines, the public will demand purer milk and will eliminate the man who will not keep his cows and his stables clean.

About pasteurized milk sold within 48 hours, there is one point that occurs to me, and it is this—that pasteurized milk gives us a sense of false security. Of course if it is sold promptly, as it should be, it is all right, but this idea of pasteurizing milk and then setting it away to be sold tomorrow or the next day, ought not to be permitted. Milk after it has been pasteurized does not sour like raw milk and you can take pasteurized milk from 48 to 60 hours after pasteurization which tastes sweet and is palatable to you, but which is more dangerous than raw milk. Therefore I believe that pasteurized milk gives the public a false sense of security.

DR. GEORGE S. LUCKETT, Santa Fe, N. M.: I am glad Dr. Wylder said what he did about the Albuquerque milk supply, because, so far, it has been the outstanding example of efficient milk control in New Mexico. Some of the other towns have recently adopted milk ordinances based on the Albuquerque ordinance and are getting better milk supplies, but Albuquerque has been at it longer and is getting better results.

In the matter of grading milk, I doubt if it is desirable to have a large number of grades. It seems to me that raw and pasteurized covers the field. When a city licenses milk dealers and undertakes municipal milk control, the public feels that the milk permitted to be sold to the public must be good. I do not believe there is much distinction in the public mind about the qualities of Grade A, B and C milk, as a rule. I think we should aim for a high

standard of raw milk and that we should bring the standard up to what it is in Albuquerque at the present time.

The matter of the examination of employees is extremely important and it is most important that they should be examined *before* being allowed to go to work. We have had several very distressing examples of the danger of employing persons without first examining them. In one instance typhoid might have been averted had the employees been examined before he was permitted to go to work, because in every subsequent examination this person was found to be a persistent carrier of typhoid bacilli.

In the matter of counts, the average of a large number of counts should be published instead of a single count.

The question is often asked why we do not have statewide regulation of milk supplies. We have no means of enforcing such a regulation and no field inspectors, or field laboratories, and are without funds with which to employ these measures.

DR. C. L. McCLELLAN, Clovis, N. M.: This is a little out of my line of business, but I want to take the liberty of saying a few words on this subject. The paper was a very fine one, indeed, and I enjoyed it very much.

Our trouble here is in lack of funds to regulate the milk supply. We have to go to the county commissioners to get the funds to do this and I surely wish the commissioners could have been here this morning and heard this paper. They are the persons who need the information and they need it more than we do. I think we should have some way of supporting our county health officer and city health officer. We passed a milk ordinance here to regulate our dairies and you never heard such a howl go up in all your life. There are so many people here who go up and down the streets selling milk, who are not licensed dealers, and the ordinance is absolutely ignored. The small towns are not appreciative of the benefits to be derived from a milk ordinance and I am very glad we are going to have some education of the laity along this line. I would much rather have heard a paper upon this subject at the public meeting we had last night than the one that was read, as I think it is a more important subject and one the public should hear.

I think there is great danger of contamination after delivery of the milk. The ordinary dairyman delivers milk on the front porch where it may sit for two or three hours before it is brought in the house and put in the ice box. Flies gather around it and consequently we may get all sorts of infection right at our own homes. The point I wish to emphasize, however, is that we must get busy and educate the laity about the importance of this matter.

DR. JAMES R. SCOTT, Albuquerque, (Closing): I want to thank Dr. Smith for opening the discussion as he did. I read Dr. Yater's little note about boiling down the scientific papers, so there were many details covered in the Albuquerque ordinance that I did not feel that I had time to incorporate in my paper.

Dr. Smith spoke about a number of things we are trying to enforce.

Dr. Kinsinger particularly told us one thing that is important and that is the care of the milk after delivery to the consumer's home. The only thing we can do to remedy this is to educate the consumer to handle the milk properly after it gets into the home.

In our ordinance, we have set forth that the milk bottle shall be used for no other purpose than containing milk. However, that feature is violated every day. During the canning season, the house-

wife uses the milk bottle for jelly, preserves, etc. They may send around the corner for kerosene, or gasoline and the milk bottle is the nearest and easiest container. Often in our own work we find the milk bottle—containing a specimen of urine—brought to the physician's office. This whole question was up before the Bernalillo County Society and we discussed the possibility of using paper milk bottles which could be used only once.

So far as spreading diseases is concerned, I do not think this a particularly important problem, but it does have a bad effect on one's esthetic taste to turn in a bottle that has contained a specimen. We have agreed more or less among the members of the medical society in Albuquerque simply to break and destroy bottles coming to the doctors' offices containing specimens and to do what we can to educate our patients to understand that this is not a proper or legitimate use for the milk bottle.

So far as having our county commissioners back of us, there is a great deal of work necessary to be done along that line. I am very fortunate in Albuquerque in having one of our milkmen as a progressive county commissioner. He is absolutely behind the health department in the milk question. A short time ago we had a little fuss over the bacterial

count of one of our dairymen, who objected to the score that was published in the paper. I heard about it and called him up and he said that he did not intend to talk to me about it, but that when the proper time came he would get a lawyer. When the lawyer came around, he looked over the ordinance with the commissioner and that was the end of it. If the health officer will talk to his dairymen, and point out to them where they can make changes that will not cost much financially and yet be a great benefit, it will not be long before one can educate the dairymen to produce better milk and the small dealer who has not the desire to do so, soon gets out of business.

In Albuquerque, the public is reading the scores that are published in the papers. Many call the office and ask "who sells the best milk in town?" This puts me sometimes in an embarrassing position and I have to tread lightly, or will be accused of favoring the dairymen. However, with the assistance of the county commissioners, so far I have gotten along nicely.

This fall I expect to go to the Pacific coast to the annual dairy exhibit and expect to carry a bunch of entries from the Albuquerque dairymen. If anyone here has an entry they would like to send in, I shall be glad to take it.

BLOOD MATCHING FOR TRANSFUSION, Including the Method of Transfusion by the Citrated Blood Method

LEE YATER, M. D., CLEBURNE, TEXAS

My aim in writing this paper is to bring to your attention the ease and simplicity of a method that is truly life saving. Those of you who have given only superficial thought to this subject may have your attention directed to this, and in your work save lives that would otherwise be lost.

I will mention only a few of the conditions calling for transfusion: loss of blood in large amounts and the anemia following; anemia not due to hemorrhage; pernicious anemia; anemia due to sepsis; hemophilia and malnutrition following some of the acute infections of infancy.

The most important point to keep in mind is the selection of a suitable donor for transfusion. The first requisite of a suitable donor is that his blood match the blood of the patient. By matching we mean the blood belonging to the same group. The cells of the donor must in no case be agglutinated by the serum of the patient but in an emergency you may use a blood in which the donor's serum agglutinates the cells of the patient.

The technic of matching is simple, and I will give you the method that I have found entirely satisfactory. Prepare four test tubes and into each of two put 1 c. c. of a 2% solution of sodium citrate; the other two remain empty. Label one tube of

citrate and one empty tube with the name of the patient, the other pair with the name of the donor. With sterile 5 c. c. syringe withdraw 5 c. c. blood from the patient. Put three drops of the blood in the patient's tube of citrate solution and the remainder in the patient's empty tube. Repeat the same procedure with the donor. Either allow the blood to clot and the serum separate or centrifuge the blood and separate the serum. You will now have a clear serum from both the patient and donor. Also you will have your cell suspension from both. Prepare slides by making a ring with vaseline, marking one P and the other D. Take a wire loop made by bending a fine wire around a lead pencil, and put two loopsful of serum from the patient's tube in ring P. Pass the loop through the flame and when cool put two loopsful of the donor's serum in ring D. Then place one small drop of cells from donor's suspension in serum in ring P and one small drop of cells from patient's suspension into serum in ring D. Mix and watch for agglutination. You will soon learn to tell when agglutination takes place by the arrangement of the cells. In fact you will hardly need a microscope after you have tried this a few times. By observing under a low power you will see the cells gather-

ing in clumps when the bloods do not match whereas the cells will remain entirely separate if the patients are in the same group. It will be better if there is no agglutination in either ring after half an hour, but in an emergency you can use the donor if his serum agglutinated the patient's cells. After you have selected your donor and the Wassermann test is negative you are ready for the transfusion.

Place 25 c. c. of 2% citrate of soda solution in the bottom of a one liter flask. (It is better to have a graduated flask but you can use a plain flask.) Pass a rather large needle into one of the large superficial veins of the donor; (it is best to insert the needle against the blood current; that is, with the point toward the hand if you are using a vein in the bend of the elbow). Allow about 250 c. c. of blood to run into the flask, keeping the flask in motion all the time to mix the blood and citrate solution. After about 250 c. c. has been collected, put in 25 c. c. more citrate solution and allow the blood to flow to the 500 c. c. mark. If you use more than this amount, keep adding the citrate solution in the same proportion; that is, 25 c. c. to each 250 c. c. of the combined solution. In other words, if you use 750 c. c. of finished blood and citrate, there will be 75 c. c. citrate and 675 c. c. blood.

This procedure may be followed out in a room other than that of the patient, and, when finished, the blood carried into patient's room and placed in basin of warm water to keep it at blood temperature until the patient is ready to receive it.

The needle is now introduced into patient's vein and attached by rubber tubing to irrigating flask. (The tubing and bottom of flask are first filled with warm saline solution.) The citrated blood is then transferred to flask and allowed to flow slowly into patient's veins.

You do not have to hurry in using this method, and if you find you are unable to enter the patient's vein by puncture, you can take your time and cut down on the vein and tie the needle in before attaching the rubber tube from the irrigating flask. All danger of the blood coagulating is then removed, and if you keep the blood warm a delay of half an hour will make no difference.

I wish to state again that the chief point of consideration in the selection of a donor is that his cells will not be agglutinated by the serum of the patient.

DISCUSSION

DR. JAMES R. SCOTT, Albuquerque, N. M. (Opening): It was not until about three minutes ago that I knew I was to open this discussion, so I want to state in advance that practically all I

know about the subject of this paper is from a laboratory point of view.

There is one thing I am very glad the author emphasizes—and that is the necessity of matching the blood of the patient with that of the donor. There has been a great deal in the literature the past few years upon the subject of grouping possible donors of blood according to the Moss classification, into groups 1, 2, 3, 4, etc. I have had the experience in a large hospital of seeing a list made up of available donors. When an emergency arose and a patient needed blood, a hurry-up call was sent out for a donor, and it was always a routine to match the blood of the donor with the blood of the patient, sometimes even in spite of the fact that they apparently fell under the same blood group. I have a number of times seen cases where I thought it would be a very unsafe and unwise procedure to transfuse blood from a particular donor into a particular patient, and I do not think that we can rely upon the Moss system in its entirety. Of course, in an emergency case, you sometimes have to get the first donor available, and it is true that in cases of emergency, as Dr. Yater has stated you may use a blood in which the donor's serum agglutinates the cells of the patient. We have never felt, however, that this was safe if you can secure a suitable donor whose blood matches that of the patient, in a reasonable length of time.

As far as the method of transfusing blood is concerned, I have never done any of that work myself. In my own mind, however, the citrate method is the one I would choose. Taking it all in all, I think this method is much superior to all others.

I have enjoyed the paper very much and think it is a very good one to bring before a gathering of this sort, because all of us who are located in sparsely settled parts of the country are apt to run up against these cases in an emergency, and you do not need a highly skilled laboratory man to do this work for you. If you go ahead and try, you will find that you will be able to match the bloods as well as a laboratory man.

DR. LEE YATER, (Closing): I realize with Dr. Scott that it does not take a trained laboratory man to do this work and that any of you can do it with a little experience. The only hope I had in bringing this subject to your attention was that maybe it might start you to handling your cases if you saw how simple it is. Of course in the larger centers, the men have the advantage of hospitals and trained technicians to do this for them, but out here in the sparsely settled parts, we have to do it ourselves. For those who do not have the advantage of hospitals, laboratories, etc., I want to state that you will find the method described a very simple yet satisfactory one, and you will save a great many lives perhaps, if you will follow it, that might otherwise be lost. All you have to do is to follow the directions.

I have the patient come to my office, then get the donor, pass upon the blood and effect the transfusion. You will soon learn that you will not even need the microscope in matching, as with a little experience you will be able to detect in a few minutes if the blood is a match.

I shall feel fully repaid for any trouble it might have been to present this paper, if only one life is saved by it. If you men who have not taken advantage of transfusion will try it, you will find it of great value in the treatment of children's diseases. We even use it with infants. You will find that many men are using transfusion in this way by the citrate method, and if you use ordinary care with this method, you will get by with it all right.

CHRONIC APPENDICITIS

HENRY SNURE, M. D., LOS ANGELES, CALIFORNIA

The roentgen ray diagnosis of chronic appendicitis deserves repeated consideration and discussion because the roentgen ray signs are not as definite as they are in gastric and duodenal ulcer or other lesions of the gastrointestinal tract. The term "chronic appendicitis" itself is rather loosely applied, at times seeming to be just a term in general to indicate pain and muscular rigidity in the lower right quadrant of the abdomen. Articles have been published (1 (Sup. Fig.) in medical journals under such headings as "Chronic Appendicitis: It Is a Myth?", which indicate the lack of agreement on the subject; therefore, the clinician and pathologist, as well as the roentgenologist, are somewhat confused as to just what should be considered under this term. In my observation of patients coming into the hospital with a clinical diagnosis of chronic appendicitis the symptoms in about 50 per cent of these cases are proved by roentgen ray examination, operation or post-mortem, to be due to lesions in organs other than the appendix. A considerable percentage of cases do not improve after the removal of an appendix pronounced abnormal by the pathologist; one reason for this lack of improvement evidenced by roentgen ray seems to be due to the formation of cecal adhesions and stasis (caput puddling) following operation. Sometimes coexistent pathology in the abdomen has been overlooked.

If the roentgen ray examination served only to locate the appendix it would be well worth while for it is surprising how far from McBurney's point the appendix may be found; five or six inches is not unusual. L. T. LeWald² himself reports 45 cases of left-sided appendices.

From the viewpoint of the pathologist it would seem that tuberculosis of the appendix and cecum is about the only true type of chronic inflammation found in the appendix region and that the term chronic appendicitis usually means recurrent attacks of the acute type. Recently it has been shown that some of the flagellates penetrate the intestinal mucous membrane, causing a chronic inflammation by their presence.

Part of the results of recurrent inflammation are adhesions and scar tissue. An excellent article by Dr. Franklin White³ on the pathological findings in these cases is

in the January number of the American Journal of Roentgenology. He quotes as follows: "Mallory, in 4,000 routine autopsies at the Boston City Hospital found the appendix NORMAL IN GROSS in 95 per cent. There were no adhesions, no kinking, no scar tissue, no obliterative changes, no constriction, no deformity of shape; not one of the signs so easily found by roentgen examination. In 3 per cent of the autopsies there were adhesions, scars, or obliteration of the appendix; in 2 per cent there was inflammation, gangrene or perforation. There were three concretions in 4,000 cases. In short, when we get roentgen evidence of gross, chronic changes in the appendix they are not universal. They have importance. They are found in only about 5 per cent of adults."

The roentgen ray study of the appendix began about 1912 when Dr. James T. Case⁴ reported a large series of cases observed by this method. Technic differs but little among competent roentgenologists, it is a part only of a complete barium meal examination which is studied fluoroscopically and from films in both the horizontal and upright positions with observations made at various times over a period of several days. If the appendix remains filled after the cecum is empty it is observed at intervals of several days to determine emptying time. The longest retention in an appendix which has been reported is four months. One large film of the urinary tract and several smaller ones of the gall-bladder region are made before giving the barium meal. By this means calculi are found, size of kidneys determined and lesions of the spine and pelvis noted. Any questionable shadows in the chest observed fluoroscopically should be checked by films to rule out pleurisy, unresolved pneumonia, subphrenic abscess or tuberculosis in the lower right lung area. The complete barium meal will determine such conditions as gastric or duodenal ulcer, gall-bladder pathology and particularly pathology in the appendix region such as carcinoma, tuberculosis, diverticulitis and the various kinks and bands. While some of these latter conditions are not of frequent occurrence one of these is liable to be present in the case you are vitally interested in and when discovered by someone else who has studied the case more thoroughly, it is rather embarrassing to say the least. Examination by barium enema only is practi-

cally useless as the appendix seldom fills by this method. Frequently films do not show the filled appendix because other filled organs, such as the cecum, are superimposed also foreshortening in the film of a normal curvature of the appendix may resemble a sharp kink. Reports of the percentage of appendices that fill varies with different workers from 50 to 75 per cent but this variation in filling is more apparent than real and is due chiefly to the variation in the time of observation. The best time is usually 4 to 10 hours after ingestion of the meal. The kind of meal used, whether malted milk, buttermilk or gruel seems to make little difference.

The appendix when filled gives such roentgen ray findings as kinking, segmentation, fixation, partial obliteration, clubbing, funnel shape, etc. When not filled very little can be said about it, however tenderness over its usual location on the cecum is suggestive. There is some difference of opinion as to the importance of filling; George and Leonard³ feel that all normal appendices should fill; E. H. Skinner⁶ feels that only the pathologic ones do fill. That these views are extreme is easily proved by reviewing hospital charts of gastrointestinal cases thereby checking up on the operative and laboratory findings. Those that remain filled several days after the rest of the bowel is empty are most likely pathologic, particularly if tenderness over the appendix is also present. Quite a number of cases have been reported where retention was the only sign and appendectomy gave prompt relief. It has been noted that the appendix in the asthenic person empties more freely and is less subject to infection than in the sthenic. Maguire Newton⁷ reports 20 cases of acidosis in children from 2 to 10 years of age cured by appendectomy, the chief sign having been prolonged retention, sometimes with adhesion, but no tenderness on palpation in any case. Segmentation, which is probably caused by peristalsis, is of no definite value, as gross section shows no cause for this finding. However the English writers state that segmentation is usually present in their pathologic cases. Irregular segmentation can be caused by partial obstruction from concretions and clubbing may take place. This suggests stasis and favors infection. The funnel shaped appendix has been described by Jordan⁸ who claims the same has been found to be pathologic when removed. Partial obliteration which was formerly supposed to be due to old age atrophy is now generally conceded to be due to previous infection and scar formation. Tenderness over the appendix itself which moves

with it, if same is movable, is an important point. In women great care should be taken to rule out tubo-ovarian disease. Fixation, kinking or angulation may mean previous rather than recent infection. The coexistence of tenderness over the appendix, prolonged retention and fixation are almost sufficient to make the diagnosis of recurrent appendicitis from the roentgen ray examination alone; however this should never be done as none of these signs are absolutely diagnostic and the clinician is apt to be misled to placing too great an importance in them.

In all cases the roentgen ray findings should be correlated with the clinical findings and when used in this manner they will greatly increase the percentage of correct diagnoses.

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GASTRIC ULCER. In the medical management of gastric ulcer, definite indications for surgical intervention may arise. The two developments which may arise in connection with the treatment are, (1) the failure to neutralize acidity because of excessive night secretion, and (2) alkalosis. In addition to these, the other indications fall under the head of organic defects which are unchanged by treatment, such defects being demonstrable by x-ray. All of these conditions may be detected in the first four weeks of hospital management.

Where x-ray defects fail to improve, they may be of two kinds: (1) cicatricial deformities of healed ulcers, which call for surgery only when they cause obstruction; (2) defects unchanged by ulcer treatment and which, by this, are probably malignant. During the first two weeks of medical management the niche should show definite diminution in size and after a month should no longer be visible in fluoroscopy, otherwise no time should be lost in substituting surgical for medical management.

Surgical Indications Arising During the Medical Management of Gastric Ulcer. Sara M. Jordan, M. D., the Lahey Clinic, Boston, Mass., Boston Med. and Surg. Jour., June 4, 1925, p. 1106.

A CASE REPORT

Tack in Lung Six Years Removed by Bronchoscopy

W. E. VANDEVERE, M. D., EL PASO, TEXAS

A. M. White, male, age 8, well developed but emaciated was referred to me July 8, 1925. Five brothers and one sister living and well. No tuberculosis, cancer, or mental diseases in family.

This patient when two years old had a severe illness, which was thought to be influenza. According to his parents he was seized with severe coughing spells, had a high fever and for three weeks was not expected to live. Since then he has been in bad health, and because of severe cough, expectoration and wheezing, has had various diagnoses of pulmonary tuberculosis, asthma, and bronchitis. Two years ago his symptoms became more severe. Six months ago he was thought to have had bronchopneumonia. He coughed a great deal and expectorated sanguino-muculent material.

Two months before I saw this patient he had a very severe spell. His temperature rose to 103° to 105° F. each day for three weeks. Suddenly one day he coughed up a large amount of foul pus (two or three cups-full his parents stated). He was then taken to Roswell, N. M., where the accompanying x-ray picture was taken (Fig. 1).



Fig. 1. Tack in left bronchus

The picture showed the cause of his trouble to be a tack in the left bronchus. Five

weeks later the boy was sent to me by Dr. W. E. Goodsell of Roswell. A fluoroscopic examination made by Drs. Cathcart and Mason upon his arrival in El Paso showed the tack had shifted to the right bronchus.

The next day under ether anesthesia a Killian bronchoscope was passed by aid of Lynch's suspension. The tack was located in the right bronchus, and quickly removed by means of Jackson's long alligator forceps (Fig. 2). Within twenty-four hours the cough which he had had for six years disappeared.



Fig. 2 Tack after removal (natural size).

Convalescence was uneventful and on the third day the patient was allowed to return to his home in New Mexico. At this date, which is six weeks after operation, his cough and expectoration have entirely disappeared, and he is rapidly gaining weight.

REMARKS

It is probable that the tack had remained in the bronchial tube since the patient was two years old, when he was thought to have had a severe attack of influenza. Metallic bodies often stay in the lungs for years before causing trouble. On the other hand, organic bodies will quickly cause a fatal pneumonia unless removed. This is especially true of peanut kernels.

The interesting points in this case are:

1. The aspiration of a tack into the bronchial tube and its presence there unsuspected for probably six years.
2. The similarity of the symptomatology of such a foreign body to pulmonary tuberculosis and asthma.
3. The importance of an x-ray examination in all obscure chest conditions.
4. The shifting of the tack from the left to the right bronchus.
5. The prompt recovery after the institution of proper therapeutic measures.

PEMPHIGUS VEGETANS: REPORT OF CASE (Illustrated)

A. M. WASHBURN, M. D., GAMERCO, NEW MEXICO

Pemphigus is defined as an acute or chronic inflammatory disease of the skin, characterized by a bullous eruption, arising from apparently normal skin, accompanied by constitutional symptoms of varying intensity.

Although there is considerable divergence of opinion among dermatologists as to just what diseases to include under the term pemphigus, it is generally accepted as a clinical entity, and embraces a group of bullous eruptions, the symptoms and course of which are of a quite uniform character.



Fig. 1. Front View; ten days before death.

The more commonly described forms are acute pemphigus, chronic pemphigus or pemphigus vulgaris, pemphigus vegetans, and pemphigus neonatorum.

Since the case I am reporting is one of pemphigus vegetans, I shall briefly review the characteristics of this form of the disease.

A rare form of pemphigus was described by Neumann in 1886 under the name of pemphigus vegetans. The earliest mani-

festations are usually seen upon the mucous membrane of the lips, cheeks, tongue or pharynx as whitish patches and blebs, and after a few weeks the typical blebs appear upon the skin. Instead of going through the usual crusting and disappearance, the rupture of the blebs leaves a raw surface showing little tendency to heal, with new blebs frequently appearing about the border. Greyish papillomatous or condyloma-like vegetations appear which give off an extremely offensive odor. Fissures covered with greyish exudate appear at the corners of the mouth and the mucous membrane of the lips is often raw and crusted. A constitutional disturbance appears during the course of the disease and as the disease progresses, the patient becomes gradually weaker and lapses into a comatose condition, with death occurring after a few weeks or months, in most cases. The blood often shows an eosinophilia.

As to the etiology, pemphigus is variously regarded as a toxemia, an infection, as a functional nervous disturbance, and more recently as an endocrine imbalance. A diplococcus has been found in the serum of the blebs in the acute form. Pemphigus occurs in both sexes but is supposedly more common in children than in adults. It is not thought to be due to syphilis.

The diagnosis is made upon the uniformly bullous character of the eruption accompanied by constitutional symptoms of more or less severity, and the invasion of the mucous membrane of the mouth.

Pemphigus must be differentiated from erythema multiforme which shows a predilection for the extensor surfaces of the forearms and backs of the hands, and the eruption is erythematous and vesicular as well as bullous. Dermatitis herpetiformis exhibits multiformity of lesions with rare involvement of the mucous membranes, chronicity, with or without remissions, and tendency to grouping, disposition to change of type, and severe itching. The bullous syphiloderm is rarely seen in adults and the eruption is usually situated on the palmar and plantar surfaces. Pemphigus vegetans may be confused with a vegetating syphiloderm, especially during the early stage with the lesions in the mouth, but the course and a negative Wassermann serve to differentiate it.

CASE REPORT

C. B., a Mexican, coal miner, 39 years of age, was admitted to St. Mary's Hospital, Gallup, New Mexico, on April 10, 1925, giving the following history: About two months prior to entering the hospital, he had noticed several crusted lesions on his head and a few pimples on his chest. He went to the dispensary of the coal company where he was given some ammoniated mercury ointment and instructed how to use it on the skin lesions. He did not again report but sought advice from another physician. On April 10, 1925, my colleague, Dr. E. D. Abraham, was called to attend this man at home, and found him in bed, acutely ill, with numerous abrasions of the mucous membrane of the mouth and many bluish skin lesions. A provisional diagnosis of secondary syphilis was made and the man sent to the hospital for treatment.

On examination, (Fig 1 and 2), the head was covered with crusts resembling impetigo contagiosa. There was a rather deep fissure at the left angle of the mouth covered with a greyish exudate. The mucous membrane of the cheeks, tongue and gums showed whitish patches resembling the specific mucous patch. The neck, both anteriorly and posteriorly, had many vesicular lesions and thick crusts, as did also the ears. On the face, chest, abdomen and back were numerous blebs and crusts, the blebs arising from apparently normal skin, and with no particular tendency to grouping. These blebs ranged in size from one-half to three centimeters in diameter and were filled with a clear serum which later became hazy. There were large thick crusts in both axillae and large, thick crusts on the anterior chest in the sternal region. Blebs and crusts were present on the inner surfaces of the thighs and in the pubic region. There were a few isolated blebs on the flexor surfaces of the forearms. The legs, hands and feet were not involved. Successive crops of blebs arose in the axillae and on the inner surfaces of the thighs, the axillary areas soon becoming covered with papillomatous crusts. Many of the ruptured blebs left a reddened surface showing little tendency to heal or crust. The breath was foul and the odor from the lesions was very offensive. The patient stated there was no itching but a slight burning sensation of the skin.

The family and past personal history were of no significance.

The blood count showed red cells, 5,140,000; white cells, 10,900; polymorph. 76; small lymph. 19; large lymph. 4; monuclears, 1; hemoglobin was 68. The Wasserman was negative. The urine was acid, specific gravity 1.012; albumin positive, many pus cells.

Blood cultures were made and the serum from the blebs examined. The laboratory reported many eosinophile cells in the serum and a gram negative diplococcus. The State Public Health Laboratory reported a short chain of streptococcus growing

readily on laboratory media, cultured from the blood.

Arsenic quinine and strychnine have been largely used in the systemic treatment of pemphigus in conjunction with local applications to the lesions.

On April 10th, the patient was given 0.9 Gm. of neosalvarsan, which dose was repeated on April 13th, but with no apparent effect on the skin lesions or on the general condition. The blebs were ruptured and a dusting powder of zinc oxide and boric acid applied.



Fig. 2. Back View.

On the basis that we were dealing with a streptococcal infection, and since the administration of arsenic seemed futile, the patient growing steadily worse, we decided to use Mercurochrome 220-soluble intravenously. On April 18th, 30 c.c. of a 1% solution of this drug was given, with a rather typical reaction (Fig. 3). The dose was repeated on April 22nd, with a second sharp rise of temperature and a hard chill of one-half hour duration, after which the temperature dropped to 99°. The pa-

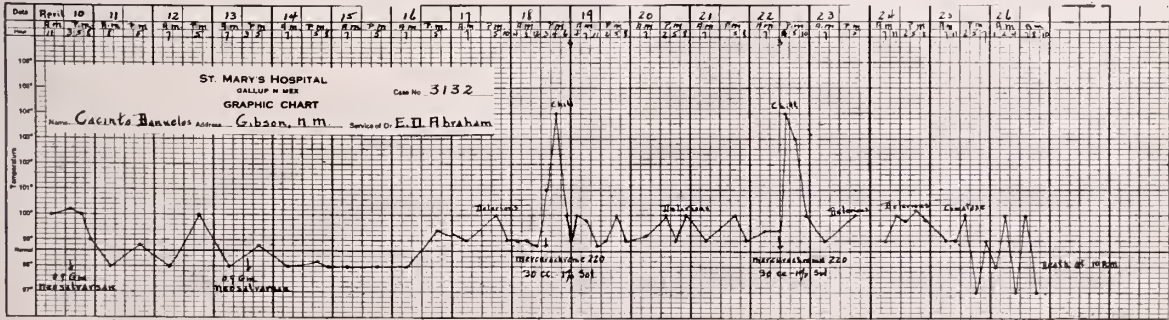


Fig. 3. Temperature Chart.

tient was very restless and delirious during his stay in the hospital, becoming gradually weaker and fell into a comatose condition with death on April 26th, the seventeenth hospital day.

Permission to perform an autopsy was not obtained.

This case is reported because of the rare occurrence of pemphigus. We feel that we were dealing with a streptococcic infection and had hoped for favorable results from treatment, but therapy was of no avail, the case coming to the usual fatal termination.

DISCUSSION

DR. J. W. KINSINGER, Roswell, N. M. (Opening discussion): I myself have been able to find very little literature on this subject. I have never seen a case, but the paper is an interesting one, especially for this society, because I believe this is the first time we have ever had one on this subject; at least it is for many years. The paper is a splendid one and has been given a good deal of thought and I think the doctor was fortunate in making his diagnosis, because many of us would probably have been more tardy in making a diagnosis than he was and would have offered some sort of treatment.

The peculiar part of this disease, as I understand it, is that it is nearly always fatal, that it comes on rather abruptly and that there is no interval between the primary lesion and other lesions and no one crop of lesions is perfectly healed until the new crop appears. Also, that rarely is there a time when there are lesions on the skin and mucous membrane that the disturbance of the blood curve is not much affected. The temperature, except when disturbed by something else, runs relatively uniform and at times rather below normal.

The case that is reported shows that there had been only two exacerbations of the temperature and they were after the intravenous treatments of arsenic and mercurochrome. The blood count was practically normal, both in quality and quantity, so we cannot consider this a hematogenic disease. It must necessarily, therefore in my opinion, be a local disease, with the final result of an extreme toxemia that destroys the patient's life, because the patient became toxic and died in coma. From the description, I would suppose that the case died entirely from toxemia. It is difficult to tell from the paper what the real cause of death was and I would like

to have the doctor state when he closes the discussion what his opinion is as to the cause of death.

The literature we have on this subject is not very plain and from what I can find this is a very rare disease, though we may at any time come in contact with a case. It is very peculiar and different from all other skin diseases. When a person has had a case once, I do not believe it would be very difficult to make a diagnosis. I feel that I would be able to make one now, though I doubt if I could have before listening to this paper.

I would like to ask Dr. Luckett if he has ever had a report of a case of this disease since he has been in the Health Department, previous to this one.

DR. J. W. CATHCART, El Paso, Texas: I think the doctor is to be congratulated on taking a photograph of such an interesting case. When we get rare cases, we should make permanent records and there is no record that equals a good photograph. I should like to have the doctor tell us just what stage of the disease the photographs were taken. I have never seen this type of disease and would like to know if later on the lesions were more numerous than they are shown in the photograph.

DR. A. M. WASHBURN, Gamarco, N. M. (Closing): As to Dr. Kinsinger's question as to the cause of death, I can only believe that death was due to toxemia. From our laboratory report, there was apparently a blood infection. Aside from the skin lesions, the man ran a septic temperature throughout the course of his illness after he came under our observation, and I think that death was undoubtedly due to toxemia.

As to whether the picture showed the condition at its worst stage and whether the lesions were the same throughout, I might say that they were practically the same. The pictures were taken just before we ruptured the blebs. After the blebs were ruptured there were some changes, but the new crop appeared right away. The pictures were taken about ten days before the man died. You can very readily see that the man got up out of bed, got on a chair and walked around at the time the pictures were taken. He was worse after that and went down hill very rapidly.

It was rather a hard case for us to handle, as we did not have the means. We had no male nurse to take care of a case of this type and the female nurses were afraid of the man—afraid he had something they might catch.

CONGENITAL VALVE FORMATION IN THE POSTERIOR URETHRA

W. G. SCHULTZ, M. D., TUCSON, ARIZONA

The relative incidence of this condition is very rare, so far as case reports and a study of the literature is concerned, but, as the case report which is to follow shows, it may go unrecognized throughout life unless intercurrent condition causes it to become manifest. It may be a fairly common condition or at least much more common than we are wont to think and should therefore be kept in mind when dealing with cases of disturbed urinary function of this nature.

Partial occlusion of the urethra caused by a membrane across the external meatus, or a densely adherent foreskin, are fairly

common conditions and so easily recognized and treated as to deserve only passing comment.—However, obstructions within the urethra itself may go unrecognized for years or, even when suspected, may not be confirmed until examined on the post-mortem table.

In this article I wish to deal chiefly with this anomaly of the posterior urethra alone. The developmental basis for this malformation is a hyperplasia of the lower portion of the colliculus seminalis, especially the inferior striae proceeding therefrom to form a membrane or valve which may or may

not more or less completely obstruct the flow of urine. As to the genesis of this valve-like formation, many and varied views have been given us by numerous observers, but as yet we have relatively little accurate information concerning their origin at the distal extremity of the colliculus seminalis. Wilckens states that the condition is due to the overdevelopment of the normal folds of the urethra (the inferior striae) which process coincidentally causes a narrowing of the urethra at this site and that the valves once started become greater from the pressure of urine. It may be that the proliferative INFLAMMATORY changes found in some of these cases are in a considerable measure the result of continuous irritation from the pressure of urine but this does not help in any way to explain a case as I am reporting, in which the valvelike structure must certainly have been present since fetal life and yet no urinary symptoms manifested themselves and it produced no obstruction to the urinary stream until after a stricture had developed at the bulbo-membranous junction, which caused the urinary stream to back up against the valve flaps and produce their closure. It seems best to regard this condition as one of arrested development since its occurrence it at the point of union of the entodermal and ectodermal portions of the urethra. These so called valves or congenital strictures may have their origin as early as the fourteenth week of fetal life and may later produce secondary sequellae such as dilated posterior urethra, and dilated trabeculated bladder with hydroureters and hydronephroses and may therefore account for some of the unexplained deaths of very early infancy. The valve formation is due to the growth and attachment of the tip of the colliculus to the roof of the urethra, and occurs at the time of marked epithelial activity of this and associated parts, namely the invagination of the verum mucosa to form the first observed true tubules of the verumontanum, and it is at this time also that the diverticula of the seminal vesicles are first noted.

The symptoms of this condition in small children are sometimes varied. Of course we have to recognize that there are other conditions which may bring about somewhat similar symptoms; namely, the spinal cord and other nerve lesions, and perhaps some idiopathic conditions. Urinary incontinence of long standing is very often a symptom of this condition and does not in itself justify urological examination, but when accompanied by diminished urinary output and high blood retention, it should never be withheld so long as no other cause

for the condition can be definitely established.

CASE REPORT

G.B. S., male, age 31, mining engineer. Family and past history of no importance. Urological history negative until the fall of 1917, in army service. After suspicious exposure he reported to an army prophylactic station and was given a prophylactic treatment which caused him a great deal of distress because of an unusual amount of burning which persisted throughout the night. The next morning he noticed a white urethral discharge and urination was accompanied by a great deal of burning. He reported to the medical officer and after a microscopical examination was told that there were no gonococci present, but was asked to report the next day for another examination which was also negative. Repeated examinations followed with the same results, but he was put on an injection treatment and was told that he had gonorrhea. The condition subsided in about two weeks and he was told that he was well. He did nothing more about it until he was discharged in the spring of 1919 when he reported to his home physician for an examination to ease his mind as to the genito-urinary condition. The physician found a urethral stricture which he diagnosed by means of sounds and treated, using the same instruments. It yielded quite readily to this means of treatment and would admit a size 30 F. sound without difficulty after the fourth treatment. At this time he moved to a different locality and following the advice of his home physician he consulted a doctor in his new location with the intention of continuing the treatment. The doctor after passing a sound told him he had a false passage and advised him to leave off the treatment which he did.

In the spring of 1922, three years later, while in Honduras he contracted gonorrhea, which was treated for six months with many improvements and exacerbations. The doctor after some time passed a sound and found a stricture deep in the urethra which he was able to pass with a small sound, but found another obstruction at the neck of the bladder which he was unable to pass. After many unsuccessful attempts he finally passed this latter obstruction with a small sound, but was unable to again do so on subsequent examination. He then left off these attempts and confined his treatment to the first stricture and the urethritis which he treated by means of dilatation with sounds, irrigations and injections. About this time the patient decided to come back to the U. S. He was told at that time a sound size 20F was being used and the urethritis was practically cleared up.

He reported to me April 15, 1923, at which time he had a morning drop negative on examination for gonococci. Complained of frequency during the day but no discomfort during the night. He had no difficulty in starting the stream which was at first full and free but soon seemed to cut itself off part way until there was only about a half stream which continued until the end of the urinary act when there was some dribbling. Although there was frequency there was no urgency and he could retain his urine for hours.

Endoscopic examination showed numerous chronically inflamed Littre's glands and a resilient, moderately indurated, annular stricture of the irregular variety at the bulbo-membranous junction which would not admit passing the endoscope size 22F. A number 20F. sound was passed fairly easily. Both sounds met an impassable obstruction about one and one-half inches back of this stricture. Dilatation of the stricture was carried up to size 32F, and the chronically inflamed Littre's glands cleared up on

the usual irrigations and injections which followed these dilatations. The prostate was normal in size and consistency.

Second endoscopic examination May 12, 1923, showed urethra to be in good condition and the stricture to have been practically obliterated, the verumontanum showed moderate enlargement and bled quite freely. The bleeding was easily controlled by a topical application of 10% silver nitrate and the endoscopic was inserted on back until obstructed as the sounds had previously been.

Examination through the endoscope showed it to be against an obstruction in the mid-prostatic urethra, which obstruction was valvular in type formed by two mucous folds, which ballooned up when a little air pressure was exerted, therefore accounting for the urinary stream changing from a full to half stream stream after a good start.

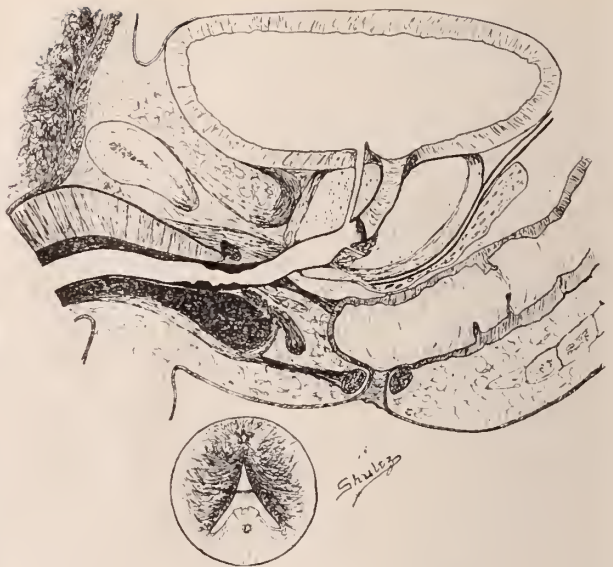
The concave surfaces were anterior and therefore did not fill with the urinary stream which in reality opened them wider pushing them outward laterally against the urethral walls. The anterior stricture which was, at first size 20F, would permit the passage of fairly full urinary stream but produced enough obstruction to the flow of urine to cause a ballooning up of the membranous urethra and a back pressure on the valve flaps forming the congenital stricture in the mid-prostatic urethra, producing a partial closure of this valve like structure and therefore cutting down the size of the stream. We, therefore, have what might be termed a vicious circle. This symptom cleared up entirely as soon as the anterior stricture was completely dilated although no treatment had been given to the posterior stricture. This is certainly quite conclusive proof that the posterior or valve like congenital stricture could have existed all his life without symptoms had he not acquired another condition which aggravated it; namely, the stricture anterior to it.

Although, I had formerly been unable to pass this structure with anything, even a filiform, I was now able to pass a filiform into it easily with the aid of the endoscope, and by starting the filiform guide to a Le Forts sound, then withdrawing the endoscope and attaching the sound, I was enabled to pass a size 20F Le Fort's metal sound without much difficulty. A few days following this, attempts to pass sounds of various sizes failed but by means of the endoscope I very easily repeated the above procedure.

Although this structure was not now giving him trouble I felt that it should be done away with as a recurrence of the acquired stricture would again produce the above condition. I passed a size 22F endoscope up to the structure, made a topical application of 10% cocaine solution, inserted a straight urethrotome blade which I passed into the valvular structure and made an incision into each valvular flap. The bleeding was only moderate and a size 24F sound was passed into bladder with very little difficulty. The size was rapidly increased to a No. 30F, and continued until healed. He was advised to continue use of sounds once each month.

Cystoscopy (Fig. 1)

A No. 24 cystoscope passed without difficulty. No residual urine. Bladder capacity normal. Normal fundus. Normal ureteral orifices except that they are found nearer to the vesical neck than usual and are very widely separated giving the appearance of being up on the side of the bladder. There is an opening of a false passage anteriorly a short dis-



tance above the vesicle neck. Prostate normal. Remnants of the valve flaps mentioned above are seen and appear as a small ridge on each lateral urethral wall just back of the verumontanum. The urethral opening of the above mentioned false passage is seen just anterior to the upper ends of these two ridges. The verumontanum is irregular in outline but gives no definite evidence that it may have been attached to the roof of the urethra as is sometimes found in these cases. The utricle shows evidence of chronic inflammation. At the bulbo-membranous junction there is found the remaining evidence of the acquired stricture described above.

PROGRESS IN NEUROLOGY. Among the diagnostic methods used in neurology, the procedure advocated by Sicard of injecting lipiodol (54% solution of metallic iodine in poppy oil), in the diagnosis of cord tumors is a very interesting advance in neurologic diagnosis. The preferable route of injection is into the cisterna. No spinal fluid is removed for a week preceding the injection. The deep tissues leading to the ligament are anesthetized with novocain; after being sure that needle is in the cisterna, 1½ cc. of lipiodol is injected, making sure that the lipiodol is transparent and not brown and that no air is injected. No spinal fluid is removed. Immediately after injection patient is seated and the vertebral segments just below the injection are percussed vigorously with the finger to help the downward passage of the lipiodol. Patient should be kept seated for 3 or 4 hours. Radiographs are made from one to four hours after injection, with the patient horizontal during the exposures. They should be taken at intervals during the next two or three days to note changes in the lipiodol image. Arrest of the lipiodol indicates obstruction in the canal; generally the arrest will be total and abrupt.

Ayer and Mixter have used the method on animals and advise caution in its use, saying that it should be reserved for cases where other clinical and laboratory methods are insufficient.

Progress in Neurology. Abraham Myerson, Boston, Mass. Boston Med. and Surg. Jour., June 11, 1925, p. 1165.

THE THERAPEUTIC ACTION OF ANILINE DYES ESPECIALLY IN INFECTIOUS DISEASES

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A glance at the medical literature of the past eight or ten years will show that the use of aniline dyes, in the struggle against diseases caused by bacteria and other microorganisms, is becoming more and more a question of practical therapeutics. Although the sanguine hopes entertained by the first investigators were not immediately fulfilled, yet this is no reason why this mode of treatment should fall into disuse. It is rather a reason why, owing to the fundamental soundness of this mode of therapy, we should make further investigations, both experimental and clinical, to find out how to overcome the apparent difficulties and insure success in the use of dyes.

For nearly forty years past it has been known that certain of the coal tar or aniline dyes had a deleterious effect on the growth of micro-organisms. Razahegyi¹, in 1887, seems to have been the first to point out that these dyes were capable of a harmful effect on some bacteria. He embodied the dyes in nutrient gelatine and inoculated the tubes with bacteria.

This preliminary work appears to have passed unnoticed although Stilling², whose investigations were published a few years later, states that Kremianski, a Russian, advocated aniline inhalation in phthisis on account of its bactericidal properties.

THE GENERAL EFFECT OF DYES

Two important contributions were added to the literature in 1890. Penzoldt³ found that certain aniline dyes, methylviolet, malachite green, etc., in aqueous solutions, could kill staphylococci and that certain other dyes could completely or partly inhibit their development.

Stilling's² work was much wider and in a general way established that some dyes, if in sufficient concentration, could effectively prevent the development of practically all the different bacteria. Stilling's experimental work was extended to clinical applications and from his findings he enthusiastically recommended that the dyes could be used as antiseptics in eye affections and in minor surgical and other infections.

This early work showed that the dyes could have both a bactericidal effect and a bacteriostatic effect; that is, that they could inhibit the growth of microbes.

Although Drigalski and Conradi⁴, in 1892, had demonstrated in particular instances that the dye crystal violet exerted a selective bactericidal effect, the systematic study of selective dye action may be said to have originated in the United States with Churchman,^{5,6,7} who worked especially with gentian violet, which was typical of a certain class of chemical dyes, studying its effects on various classes of bacteria and individual strains of different types. He was thus able to divide bacteria into two general groups according to the bacteriostatic effects of the dye, i. e., those which were gentian-violet positive and those which were violet negative. He found also that there was marked parallelism between Gram-staining and violet bacteriostatic effects. Thus of 130 species of bacteria studied Churchman found that 77 were Gram-positive and 53 Gram-negative.

Seventy or 90 per cent of the Gram-positive bacteria were also violet-positive and of the Gram-negative only 15 per cent were violet positive. In Churchman's opinion gentian violet differentiation of bacteria was more delicate and more accurate than Gram-stain differentiation. Gentian violet acted in precisely the same way toward bacteria whether the organisms had been stained with it before being planted on agar or if the dye was present in the media on which the bacteria were planted unstained.

When bacteria were exposed to gentian violet and planted upon plain agar all the commoner Gram-negative organisms grew while all the commoner Gram-positive, spore-bearing, aerobes were killed. What is true of gentian violet is also true, in greater or lesser degree, of other so-called basic aniline dyes of the triphenyl-methane group; it makes no difference, as regards results, whether the organisms are stained with the dye before being planted on the agar or if the dye is present in the media on which the organisms are planted unstained.

Mercurochrome does not belong to the triphenyl-methane group. It is purely a disinfecting dye; the mercury is incorporated into the body of the molecule in direct combination with the phenol or benzene ring.

It was assumed that the bacteriostatic or growth inhibition effect of dyes was always parallel with bactericidal effect; i. e., that

if a chemical is found to prevent the growth of a bacterial species it was taken for granted that it would kill the organism. But while this was true of the basic dye group of which gentian violet was the prototype, Churchman found that it was not true of the acid dye fuchsin, the bacteriostatic and bactericidal power of which do not run parallel. Fuchsin kills Gram-negative bacteria when they are exposed to it, thus having a reverse selective bacteriostatic action as compared with gentian violet; but when fuchsin is added to the culture media on which the bacteria are planted, it acts just the same as gentian violet. A substance therefore which kills an organism when directly added to it may have little or no power to inhibit its growth when present in the environment in which it is growing.

In view of the experimental work of Hirschfelder, Malmgren and Creavey, it is questionable whether mercurochrome, acriflavin, or gentian violet could influence the course of local or general infections to any very great extent. They have shown in their experimental work on rabbits that the diffusion of these drugs into edematous tissues is so slight, when given in therapeutic doses, as to have practically no bactericidal or bacteriostatic properties.

Simon and Wood⁹ studied the relation of chemical constitution of dyes to their inhibitory power and found that acid dyes had but little bacteriostatic power as compared with basic dyes.

Many other investigations have been made, especially as regards particular dyes or special types of organisms. Thus Krumwiede and Pratt¹⁰ found that the streptococcus-pneumococcus groups were more resistant to dyes than other Gram-positive bacteria and Norton and Davis¹¹ that the streptococcus viridans and pneumococcus groups are inhibited equally by dyes and cannot be differentiated in cultures by this means.

We may sum up this part of the subject by saying that certain of the aniline dyes inhibit the growth of micro-organisms or kill them. Some dyes possess these powers more markedly than others and some are known to have a selective affinity for action on certain specific microorganisms.

The dyes acriflavine, methylene blue, Bengal rose, Victoria yellow, are active against the pneumococcus; brilliant green, gentian violet, malachite green, methyl violet are powerful anti-staphylococcal agents; these as well as victoria yellow are also equally effective against the streptococcus; brilliant green, hoffman violet, malachite green, etc., act against the gonococcus.

THE MODE OF ACTION OF DYES ON BACTERIA

Different explanations are given by different authors regarding the methods by which dye stuffs exercise an influence on bacterial growth and life. Originally these substances were used as local disinfectants, especially in eye infections; the action was then believed to be purely a mechanical one. It is now known, as the result of investigation, that the action is a chemical one. The bactericidal and bacteriostatic power of aniline dyes is a function of the chemical structure proper to each dye and very many of the known dyes have no bactericidal power as far as is known.

Thus Simon and Wood find that inhibitory action upon the growth of certain types of bacteria was a property common to all the tri-amino-triphenyl-methanes, but was not a property exclusively belonging to this group of chemicals but was also strongly manifested by other basic dyes, depending upon the presence of basic auxochromic groups and the absence of corresponding acid groups. While the basic dyes, generally speaking, possess a stronger bacteriostatic and bactericidal power than acid dyes, yet in particular cases these powers are marked in acid dyes. Thus the three dyes most effective against the pneumococcus are acid dyes. The presence or absence of certain groups in the molecular chemical constitution of the dye, as just mentioned, is considered to determine the electivity of the dye for bacteria. As a general rule, it may be considered that such groups are absent in the molecular construction of the acid dyes.

It is held by some, such as Gay and Beckwith¹² that the greater permeability of certain bacteria is a reason why they are acted upon more rapidly and more effectively by dyes than others. Thus Churchman, Eisenberg, Kolmer and others have shown that Gram-positive bacteria are more rapidly killed or inhibited by dyes than Gram-negative, permeability to Gram stain being an indication that they are very permeable to dyes.

Simon and Wood⁹ explain the mode of action as follows: When organisms are first placed in the colored solutions the dye is deposited in the intercellular spaces of the covering membrane, which is thereby stained. Even without supposing that any chemical action takes place the mere occlusion of these spaces alone would suffice to affect more or less seriously the metabolism of the cell and would thus have a serious inhibitory effect upon the growth of the cell if it did not cause death. But in greater concentration of the dye or on

longer exposure of the germs to it, it may be supposed that some of the dye would penetrate into the cell itself and reach its protoplasm, leading to death by interference with intracellular metabolism. Whether such intracellular action is chemical or not cannot be definitely stated.

Churchman⁵ considered that gentian violet could exert its influence on bacteria through the blood stream. This view has been accentuated by Browning, Cohen and Gulbransen¹², who claim to have shown experimentally that the dye substance—acri-flavine—endows animal blood with bactericidal properties. The action is effected through the serum and these writers have also found by experiments *in vitro* that the addition of blood serum to dye solutions in some cases inhibited and in other increased the bacteriostatic or bactericidal effects of the dyes.

Burke and Grieves¹⁴ have demonstrated that the bacteriotropic action of crystal violet, methyl-violet, gentian violet, brilliant green, basic fuchsin, the flavins, and malachite green, are all materially increased by increasing the alkalinity of the body fluids. This can be done by the administration of alkalies by mouth, or their local use when the dye is to be applied locally. Controlling the hydrogen-ion concentration of the body fluids, they show at times to be of use in checking the growth of certain bacteria. There are few exceptions.

Saxl and Scherf¹⁵ have demonstrated that in the presence of complete achylia, dyes are not excreted into the stomach and that only the lipid solution dyes are so excreted.

THE THERAPEUTIC APPLICATIONS OF DYES

The indications for the employment of dye therapy is given by fungoid, protozoan and bacterial diseases. It is not very long ago since such morbid conditions were treated symptomatically alone because there were no known means of reaching the cause of the disease at its root; but it is one of the glories of modern medical science that it employs experimental methods in the development of new remedies for infections or other diseases in contrast with the empiric remedies that characterized the pre-laboratory days. Sydenham was one of the first to refer to the value of Peruvian bark as a specific remedy acting directly on diseased tissues. It was a long stretch from Sydenham to Pasteur and Koch, the former demonstrating that most infectious diseases were due to micro-organisms and the latter showing the specificity of different microbes and their etiological signifi-

cance for the development of infective diseases. But the great value of these discoveries was that they pointed to a way in which the cause of infective disease might be directly reached and attacked. The great desideratum in modern drug therapy of microbic disease is to find remedies which sterilize the body after its invasion by microbes but which do not damage the organic tissues. Ehrlich was the great pioneer in this field, building up synthetic chemical drugs with the foregoing object in view. Ehrlich's successful work in the chemotherapy of trypanosomiasis by a dye, trypan red, and of syphilis by means of arsenic compounds is well known.

Ehrlich's work was principally directed against protozoa, but his followers all over the world have applied his methods to infective diseases due to moulds, fungi and bacteria. Schamberg and Kolmer¹⁶, after extensive investigation, have found that brilliant green among the dyes was the best restrainer of growth of superficial molds and fungi but that as a fungicide crystal violet was superior. They considered that crystal violet has a stronger effect than iodine which is most extensively used as a skin disinfectant in surgery.

Practical results in the treatment of bacterial diseases by means of dyes have been obtained up to the present only within narrow limits, but the more recent reports indicate favorable action upon localized infections where the dye material can be properly applied.

The late war gave an opportunity for the extensive use of dyes in the treatment of infected wounds. Baumann¹⁷ reported good results from the use of methyl violet. Hoffmann¹⁸ used an aqueous solution mixture of dyes especially directed against streptococci and staphylococci infections. Hoffmann remarked that dyes had not the same corroding effects on the tissues as ordinary antiseptics and, therefore, that they are to be preferred in the treatment of infected wounds as they do not produce necrosis nor, consequently, an abiding place for fresh colonies of bacteria. This property of being non-irritating is of most particular value in local injuries accompanied by maceration and eczema due to secretions. The application of dyes rapidly brings about dessication and disappearance of all irritation phenomena. Dyes, especially brilliant green and the acidine compounds, were extensively used by the British Army during the war in the treatment of infected wounds; Massie¹⁹, Drummond²⁰, Pitcher and Hull²¹, and others have so reported.

Queyrat²² has used dyes with good effects in chancroid. He employed a sterile

combination of fuchsin and methylene blue, 7 parts fuchsin to 3 parts of a 10 per cent aqueous solution of the blue. The mixture is applied on a saturated cotton to the chancre surface pressing it into the anfractuositities; the dressing is changed daily. A. J. and M. E. Greenberger²³ and Dorland²⁴ have used dyes against gonorrheal infections.

Meleny and Zau²⁵, in an extensive piece of experimental work on rabbits, have shown that the inhibitory action of neutral acriflavine within the body against hemolytic streptococci is almost nil even in lethal doses of the dye.

The first named authors treated 200 office cases of gonorrhea (126 acute and 74 chronic) with 1/4000 strength acriflavine solution in normal saline at a temperature from 35 to 40 degrees C.; the results obtained were distinctly more encouraging than with the use of the organic silver preparations or potassium permanganate in current use in the treatment of acute specific as well as non-specific urethritis.

Infections localized about the eyes were almost the first to which dye therapy was applied. Excellent results from dyes, either singly or in combination, the latter being employed in rebellious cases, have been reported by Loehlein²⁶ and others.

Wohlgemuth²⁷, of the Rudolph Virchow Hospital, Berlin, treated a case of typhoid osteomyelitis with dyes. This case was treated first by methyl violet alone with failure. The addition of fuchsin immediately caused the disappearance of the Eberth bacillus, which result was definite. Hoffmann¹⁸ also states that the effects of dyes in acute and old standing osteomyelitis is very favorable.

Hoffmann in some cases of spina ventosa, after as complete excision as possible of the diseased tissue, tamponed the cavity with gauze imbibed with dye solution, leaving the tampon in place for three weeks. On removing the tampon, the surface of the cavity was granulated clearly without secretions and completely closed after a short time, while before the use of dye, Hoffmann had always observed operation for spina ventosa followed by abundant suppuration. Nor did the soft parts in the vicinity suffer in any way from contact with the dye.

F. McKelvey Bell²⁸, in writing of 122 cases, including bronchitis, whooping cough, bronchial pneumonia, Ludwig's angina, erysipelas, etc., treated with neutral acriflavine, concludes that the acute conditions showed satisfactory response, while chronic conditions were much less tractable.

Major²⁹ reports one case of subacute in-

fective endocarditis promptly relieved by the intravenous use of gentian violet.

Goldberg³⁰, after some experience, has arrived at the conclusion that intraspinal, intracisternal, or intraventricular use of gentian violet in a solution of 1:250,000 is not irritating and may be of decisive benefit in treating meningitis caused by the common Gram-positive organisms. He advises frequent drainage, followed by such injections.

Mosser and Monroe³¹, of Mexico City, report 8 cases of systemic infection, suspected Gram-positive infections, treated with 10 or 15 cc of a one per cent solution of gentian violet. They report such good effects as to warrant the belief that it may be a therapeutic measure of great value.

Other minor surgical uses to which the dyes are applicable are leg ulcers, burns which are not extensive, bed sores, and in fact any inflammatory condition in which the region can easily be reached by the dye solutions.

In pre-operative treatment of prostatic patients, lavage of the bladder with a weak dye solution causes cystic inflammation, if present, to recede.

Furunculosis, abscesses, phlegmons, acne, anthrax, and localized mycotic infections are indications for the use of dyes.

Up to the present time only slight progress has been made in the application of dye therapy to the treatment of infective processes in closed cavities. However, Churchman³², has reported favorable results from the use of gentian violet in bone and joint infections; Waters³³ in tuberculous empyema; and Major³⁴ in streptococcal empyema.

The same remark applies to the internal application of dye therapy in generalized infections. Here, in addition to the difficulty of reaching the focus of infection, there is the fact that the dye is likely to be chemically reduced within the body and thus lose much if not all of its bactericidal effects. Moreover, dyes or their reduced products may be toxic for the host.

Meleny and Zau²⁵ have shown in their rabbit work that acriflavine has a selective action on certain body tissues, particularly the kidney and liver. They may take up the dye in such concentrations as to seriously injure or even entirely destroy themselves.

In general, streptococci and staphylococci infections are more amenable to basic dye therapy than infections originated by the pneumococcus and colon bacillus. In time, however, it is hoped that better means of acting upon these microbes will be found.

As a general conclusion it may be said

that while theoretically aniline dyes are specific agents capable of overcoming the cause of infective processes, the difficulty in practice is to bring the dyes into direct contact with these causes. Currently, the dyes are found efficacious in localized infections, but as clinical experience multiplies there is reason to believe that the use of dyes will also be found effective in generalized and deep seated infections.

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DRAINING ABDOMINAL WOUNDS

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All surgeons have experienced trouble in healing abdominal wounds, especially in fat patients, in whom drainage is used more frequently.

Whether to drain the incision or not is a question of opinion. There are those who believe that if the operation has been performed aseptically, it is not necessary to drain the wound; but experience advises that drainage is as necessary in surgery as is asepsis. If we carefully bear in mind the anatomic structures pertaining to the operation, we have to accept that every incision has to be drained even when the operation is entirely clean.

In work on any of the abdominal viscera we can be sure that we have tied the blood vessels, but we never know to what extent we have injured the lymphatics, and if the wound is closed without drainage and the lymphatic vessels have been cut off, the lymph accumulates in the abdominal cavity. This happens easily; for instance, in the angle formed by the appendix and cecum, there is a chain of lymphatic glands; the same exists between the fallopian tubes and

ovaries. Of course, the surgeon always has in consideration the lymphatics; but many, many times it occurs that there is a place which has been bleeding, the blood vessels are tied, but in a few minutes after there appears a new liquid, light red rose in color and the surgeon says, as I heard one say dogmatically: "Oh, that is alright, it is nothing but serum." But really in this case it was not serum but lymph, a splendid element in which to develop a fatal infection. Perhaps the operation was performed brilliantly, but it happened that twelve or fifteen hours after (two or three o'clock in the morning) the telephone rang. It was the nurse, who anxiously said, "Doctor, your patient is not very well." "What is the matter?" the doctor said. "I do not know Doctor, but you had better come at once." And the poor doctor who during the operation was splendidly referring to details of his technic, recommended by Doyen, Tuffier, Murphy, Ochsner, the Mayos, Moynihan and many other gifted masters, now was taking the patient's pulse, he was at the bedside smiling bitterly and talking sweetly,

telling the patient: "Oh, don't you worry Mrs. So and So, there is nothing but a little gas; you will be alright pretty soon." (In the morning it was nothing but serum; not it is nothing but a little gas); but he knew that the anxious expression of the patient, her rapid and irregular pulse, her distended and tympanitic abdomen all combined to tell him that the end of the patient was near.

Now the nurses rush frantically about, the doctor recommends an injection of pituitrin, then another of adrenalin, then strychnine, normal saline intramuscular, intravenously or by the rectum. He is in a great command of resources, with the principal idea of saving the patient's life, but nothing can be done to keep her living and she died from fulminant septicemia. Her power of resistance was too low. The offending toxic material was too virulent.

In chronic infections it is different; it often happens that in chronic salpingitis, chronic abscess of the liver and of the appendix, the patient is toxic for several days. He has a rapid pulse, fever between 100 and 102 especially in the afternoon; white tongue, a little albumin in the urine, constipation, loss of appetite, weakness and trembling hands. The condition is more dramatic than dangerous, because, with the infection also has developed autogenous bacterins which are a wonderful aid to the surgeon in combating the pathology of the case. Of course it is not necessary to say that all these cases have to be drained.

The above considerations relate to the abdominal cavity, but regarding the abdominal wall, drainage is more necessary on account of the following circumstances: If the fat of the abdominal wall is not protected during the operation, the nucleated fat vesicles will be destroyed or infected with the removed pathology, and three or four days after, a cloudy liquid will be discharged through the incision or stay stitches.

Another trouble very common is when the sutures of the abdominal muscles are drawn too tightly, the blood supply will be very poor if not cut off entirely. The consequence of this is partial gangrene of the muscles resulting in a purulent discharge or in the accumulation of serum. Also, during progress of suturing, the needle may puncture small blood vessels causing the formation of a hematoma, which separates the tissues, acting as a foreign body. In both cases even if there is not infection the patient is obliged to keep in bed twenty or more days longer, until the wound has en-

tirely discharged, and the partially destroyed tissues are reconstructed. But as a general rule the result of these cases is a post-operative hernia.

To avoid or reduce the above conditions it is well to bear in mind:

1. To protect with a wet towel the fat of the abdominal wall during the operation, using spring clips to hold the towel above the skin and below the internal fascia.

2. To drain clean wounds for twenty-four hours with soft rubber tubes without gauze. The hard drainage tubes may perforate the intestine and the gauze may carry infection to the peritoneum.

3. To keep in mind that the sutures on the abdominal muscles must not be too tightly drawn, for if the blood supply is poor or interrupted, the consequence will be either infection or delay in healing the incision.

4. Not to fail to drain with very soft rubber catheter for 24 hours the abdominal muscles between the internal and external fascias.

5. To use boilable catgut internally and dermally for stay stitches and closing the incision.

6. If, for any reason, the stay stitches have to be removed before the regular period of time, always protect the union of the incision with small ribbons of surgical adhesive plaster, keeping them in place for ten or twenty days, until the abdominal wall is sufficiently strong, then there will be no separation of tissues.

GASTRIC CARCINOMA. A review of 2000 gastric complaints in this clinic has shown the upper abdominal organic lesions responsible for these complaints to be about in the following ratio: Gastric ulcer 1, gastric cancer 2, duodenal ulcer 6, gallbladder disease 12. Eusterman agrees that this ratio is about correct, except the incidence of cancer is higher at the Mayo Clinic, due probably to the large number of hopeless cancer cases who go there as a last resort.

In the 58 patients with gastric cancer, a presumptive diagnosis was made by the roentgenologist and clinician on 57 patients. The radiologist cannot differentiate between lues and gastric carcinoma as a rule, nor can he differentiate uniformly simple ulcer from malignant degeneration of ulcer. The expert radiologist will recognize 98 percent of carcinomatous stomachs as showing organic pathology, and the clinician must supplement these findings by other means.

This exact radiologist diagnosis is highly technical, requires large experience, has many pitfalls to the occasional operator, and requires combined fluoroscopic and radiographic procedures. A positive diagnosis of carcinoma of the stomach is made fairly frequently by unskilled radiologists, when such a lesion is not present.

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WE ARE LATE

This issue of SOUTHWESTERN MEDICINE is unavoidably delayed, owing to conditions which could not be set aside. It is expected that the October issue will be a few days late also. The October issue will carry the program of the Southwestern meeting in El Paso and will be held up a few days in order to carry this program.

THE SOUTHWEST MEETING, EL PASO, November 5th, 6th and 7th.

The dates selected for the annual meeting of the Medical & Surgical Association of the Southwest, to be held in El Paso, are November 5th, 6th and 7th. Our meeting this year will be very advantageously placed just preceding the Southern Medical Association, to be held in Dallas, November 9th to 12th. Perhaps many of our members will attend the Southern Association's meeting, and we will undoubtedly be favored with several distinguished visitors stopping over in El Paso enroute to Dallas.

Dr. Willis W. Waite, First National Bank Bldg., El Paso, is chairman of the Program Committee, and will have the completed program ready for the October issue of this journal.

Dr. J. R. Van Atta, of Albuquerque is in charge of the New Mexico portion of the program and Dr. Orville H. Brown, of Phoenix, has charge of the Arizona representation. Dr. Watson, of Tucson, originally appointed from Arizona, will be out of the state continuously until after the meeting and could not serve. Any member of the

Association living in New Mexico who desires to present a paper before the meeting in El Paso should communicate at once with Dr. Van Atta, and any member living in Arizona who desires a place on the program should communicate with Dr. Orville Harry Brown of Phoenix.

The Local Committee on Clinics will be composed of the following: Dr. Felix P. Miller, Surgery; Dr. Orville Egbert, Tuberculosis; Dr. E. A. Duncan Internal Medicine; Dr. Harry Leigh, Pediatrics; Dr. J. N. Britton, Eye, Ear, Nose and Throat.

Watch the October issue of SOUTHWESTERN MEDICINE for details of the scientific and clinical programs.

FREDERICK J. NORDBY

The medical profession of New Mexico and the members of the Medical and Surgical Association of the Southwest were shocked by the sudden and wholly unexpected death of Dr. Frederick J. Nordby, Surgical Chief of the U. S. Veterans' Hospital, at Ford Bayard, N. M.

Dr. Nordby's fine papers before the last two meetings of the Southwest Association were features of those meetings, indicating a very high class of surgical work.

Dr. Nordby was only 36 years old, having graduated from the University of Colorado in 1913, and his untimely death removed a very promising figure from the medical circles of New Mexico. The cause of death, so far as meagre reports would indicate, was some acute cardiac attack.

WILLIAM A. BRISTOL

Word is received of the death, on August first, of Dr. William A. Bristol, of Clayton, N. M., the cause of death being angina pectoris.

Dr. Bristol was the president of Union County Medical Society, and was sixty six years of age. He was a graduate of the Louisville Medical College, class of 1893, and was licensed in New Mexico in 1912.

PUBLIC HEALTH IN NEW MEXICO

The Weekly Bulletin of the Bureau of Public Health of New Mexico recently indulged in a retrospective review of the accomplishments of that department during the past six years.

Many physicians of the Southwest can recall the time, prior to the establishment of the present Bureau in New Mexico, when that state was considered to be at the bottom of the list in public health enlightenment. Although, as the Bulletin recalls, several earnest and determined members of the profession were doing all possible to remedy matters, no marked improvement took place until the establishment of the present efficient and comprehensive Bureau of Public Health, with its full time officials. After recalling past conditions, the Bulletin says:—

In contrast to these early conditions the present outlook is encouraging. Then, the local health officers had no experience in modern public health practices, which necessitated constant travel over the state by members of the Department to take control of menacing situations and instruct the health officers in their duties. Now, we are seldom called upon for such service. Then, there was not an experienced, trained health officer in the state. Now, we have eight counties employing such men on a full-time basis and, last year, ten counties had this service. Then, smallpox and diphtheria were rampant everywhere. Now, smallpox is a curiosity and diphtheria is rapidly receding before the application of preventive measures. Then, only three public health nurses had ever been employed in the State. Now, there are fifteen at work. Then, there was no organized health work in the schools. This year, a complete program of health education will be introduced into every high school, as the beginning of a larger plan. Formerly, city and industrial water supplies were without trained supervision. Now, every public supply is regularly inspected by a sanitary engineer and tested in the laboratory. Indeed, there was no laboratory for public health purposes, until our own was established; prior to that dependence had to be placed on private laboratories and the regular fees were charged. Until October, 1919, there had been no statewide registration of births and deaths nor any compilation of vital statistics. Now, over 80 per cent of birth and deaths are recorded in the central office and a beginning has been made in a statistical study of them. Since the commencement of this period, the Rockefeller Foundation has spent over \$40,000 in the state, on

health activities, and the federal government has contributed nearly \$70,000.

All of this is recalled, not to laud any individual nor any one portion of the sanitary organization of the state, but to place in clearer relief the fact that our people as a whole are developing a broader social outlook; that they are cooperating to make this state a happier and more inviting place in which to live.

Illustrating the type of work done by the full time County Health Officers in New Mexico, the following report of the recently appointed full-time officer of Eddy County is given in a recent Bulletin, and contains so many obvious lessons for county health officials, that it is given in full here:—

"As stated in the report for last month the Health Officer decided to carry out inspections of all food handling establishments—including barber shops—in the county. Food handling places and barber shops in Carlsbad, Artesia, Hope, Loving and Oil City were inspected during the month as follows: Carlsbad, 34; Artesia 9; Loving 6; Oil City 5; Hope 2; total 66. Divided as follows—Groceries 8; Restaurants 19; Barber shops 10. Bakeries 6; Meat shops 3; Soda fountains 9; Cold drink establishments 4; Ice plants 1; Bottling works 1; total 66. This does not include 6 dairies of which five were scored. In the above list 220 persons are handling food and drink and 22 are employed in handling milk.

"Of the 22 dairy people 12 have been examined for carriers and 12 Health Certificates issued. Fecal specimens will continue to be examined until all are covered and Health Certificates issued. All barbers in Carlsbad (15) have had a physical examination and Health Certificates issued.

"In all above places there remain to be examined; Carlsbad—dairy 1; meat markets 1; small barbershops 2. Artesia—Ice cream factory 2; dairy 1.

"There remain now to be inspected only the small villages of Dayton, Lakewood, Malaga and Otis. It might be noted that the 242 food handlers and barbers were all given a superficial physical examination but Health Certificates are being issued only on more careful examination.

"The Spanish First Aid Classes are still being held weekly at Loving with a good attendance. The sewing class for the Spanish girls is still functioning with an attendance of from 15 to 20 each week. It is regretted that it may be necessary to temporarily discontinue the First Aid Classes as with the advent of the opening of the schools and some 2500 children to be examined it will take the Health Officer and staff some weeks of steady work to finish these examinations.

"Of the 7 Typhoid Fever cases reported and investigated by the Health Officer 3 were ruled out as Typhoid Fever and of the remaining 4 it was definitely established that the infection did not take place in Eddy Co. in 2 cases.

"The Clean Up Day proclaimed by the Mayor of Carlsbad for August 13 was an unqualified success and tons of rubbish that had accumulated were removed from houses and lots.

"In September of each year some 1200 to 1500 Mexican laborers are imported from the border to work in the cotton fields around Loving. The Health Officer is trying to have the employers of this labor demand that each man have a health certificate before he leaves the border or if it is impracticable to do this, to at least have each man examined for communicable diseases as soon as he arrives at Loving. The County Commissioners

have taken the matter up and it is hoped that the employers will co-operate in this work and thereby avoid the introduction of communicable diseases into the community.

"As soon as practicable it is contemplated to establish in the village of San Jose, near Carlsbad, an English night school for the benefit of those Mexicans whose employment does not allow them to attend school during the day. The primary purpose of this school is to teach English and general Americanization. Incidentally talks on hygiene and sanitation will be given as opportunity offers.

TULANE UNIVERSITY POSTGRADUATE SCHOOL

Elsewhere in this issue appears the announcement of the Graduate School of Medicine of Tulane University at New Orleans.

For many reasons this school should attract the medical men of the Southwest who are seeking postgraduate work. One of the chief of these is the wealth of material in diseases peculiar to warm climates; these conditions are frequently encountered in the southwest and are not always adequately understood or properly handled. The location of New Orleans as a seaport in a sub-tropical location gives it a peculiar advantage in teaching and demonstrating warm climate diseases.

Tulane University Graduate School of Medicine gives very attractive courses of six weeks in any one of the five following departments: Medicine, Surgery, Obstetrics and Gynecology, Special Senses, Laboratory. The division is a very excellent one for the general practitioner who wishes a fairly comprehensive review of his field. For example the medical man is taught not only general medicine, but gastro-enterology, pediatrics, tropical medicine, dermatology, nervous system diseases and phthiology, with opportunity to see clinical demonstration of cases in all these classes. The laboratory course covers clinical laboratory diagnosis, pathology and radiology, a very desirable combination. The institutions used for clinical demonstration are The Hutchinson Memorial, Charity Hospital, Eye, Ear, Nose and Throat Hospital, City Hospital and Touro Infirmary.

COCHISE COUNTY (ARIZ.) MEDICAL SOCIETY JUNE MEETING

The Cochise County Medical Society met in regular session at City Hall, Bisbee, on June 6, 1925, 8:30 p. m.

Members present: Drs. Reese, Durfee, Cruthirds, Wright, Causey and Cook.

The meeting was called to order by the president, Dr. Causey.

On account of small attendance it was decided not to have the program.

Dr. Reese who was to have read a paper on obstetrical observations submitted same.

After voting to discontinue meetings during the summer months the society adjourned.

H. A. Reese, Acting Secretary.

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Any physician or surgeon in the Southwest, who cannot accompany patients to Phoenix, is invited to refer them direct to the Hospital. They will be placed in charge of ethical members of the Staff.

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SISTERS OF MERCY

COCHISE COUNTY (ARIZ.) MEDICAL SOCIETY
SEPTEMBER MEETING

The Cochise County Medical Society held its first regular meeting after the summer vacation at the City Hall in Douglas, Sept. 5, 1925.

There were present Drs. Causey, Wright, Durfee, Hawley, Cook, Bledsoe, Tuttle, Cruthirds, Bridge and Lund.

The minutes of the meeting of June 6th, 1925 were corrected and approved.

The application for membership of Dr. Willis P. Baker of Fort Huachuca which had been reported favorably by Drs. Bridge and Reese of the Board of Censors was favorably considered and Dr. Baker was elected to membership in the society.

A communication from the A. M. A. concerning auto emblem with the name of the county society on the emblem was by motion laid on the table.

The treasurer acknowledged the receipt of \$1.26 from the committee in charge of the State Medical Association meeting. This represented the balance left in their hands after expenses were paid.

It was moved and carried that a vote of thanks of the society be extended to the committee in charge of the state meet for their successful work in putting on the state meet.

Dr. Cook of Douglas presented a paper on "The Deaf." Dr. Cook stated that deafness was of two types, conductive and perceptive. The latter group comprises the greater number of cases. The Eustachian tube is the port of entry of all inflammatory conditions of the middle ear barring those of traumatic origin. The large proportion of con-

ductive deafness is due to immobilization of the stapes in the oval window. The fixation of this bone is the result of an inflammatory process or of a true ankylosis in osteosclerosis of the ear bones. Perceptive deafness may be due to lues. One of the important points of the paper is the fact that in most cases of deafness the patient comes to the ear man after the damage is done. The most that can be hoped for is an arrest of the condition. The essential thing in treating deafness is to remedy as they arise the conditions which later in life will produce the deafness such as removal of adenoids and infected tonsils, the prompt treatment of sinus conditions and infections of the nasal passages.

Dr. Bridge reported a case of chorea complicating pregnancy. The patient at a previous time had one kidney removed. The urine was negative. The patient had the characteristic choreic twitchings. The case was a very aggravated one and her mental condition was becoming precarious. The case was so desperate that on consultation the pregnancy was interrupted. This resulted in the prompt improvement in a week's time and in two weeks she was up and about with but very little of the symptoms remaining.

Dr. Bledsoe reported a case of a man of 62 whose only symptom was the urinary findings of blood, tissue shreds and a few casts. The prostate was moderately enlarged. The blood and shreds suggested malignancy. Cystoscopy demonstrated a carcinoma of the trigone of the bladder. Deep x-ray therapy resulted in relief from pain, the urine being almost free from microscopic blood.

Dr. Bledsoe also reported a case of pyelitis in a pregnant woman of 20. When first seen she had a high temperature and a dicrotic pulse. Her urine was full of pus. She complained of a deeply located pain in the region of the right kidney. Following the exhibition of urinary antiseptics and intravenous mercurochrome the patient showed marked improvement. She went to full term with no complications.

Dr. Lund reported a case of threatened eclampsia with blood pressure of 180, albumen and casts. The patient, a primipara of seven months gestation failed to go into labor 24 hours after introduction of a Barnes bag. Rupture of the membranes was then done and 48 hours later a second Barnes bag was introduced which after 40 hours produced complete dilatation. She then had an instrumental delivery and made an uneventful recovery.

Dr. Lund also reported a case of pyelitis in a 5 year old girl in which the use of hexyleresorcinol, neutral acriflavine, utropan, intravenous uritone and mercurochrome produced no results.

Dr. Bridge and Dr. Bledsoe briefly reported the existence of two cases of infantile paralysis in Bisbee. One of these had been in Los Angeles this summer.

Adjourned.

Carl H. Lund, Sec'y.

MASONIC HOSPITAL (EL PASO, TEXAS)

Minutes of the Meeting of the Medical Staff
 Held at the Hospital, July 14, 1925.

Meeting was called to order at 8 p. m. by the chairman of the staff. Minutes of previous meeting were read and approved.

The application of Dr. Clark was read and it was recommended to the board of directors that Dr. Clark be appointed to the visiting staff.

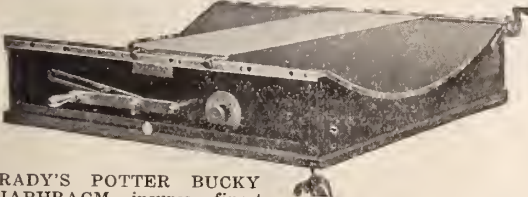
Mr. Loomis of the board of directors appeared before the staff and stated that it was the wish of the board of directors that an out patient department be established in connection with the hospital. He stated that the board considered this would assist in their getting taxes refunded and the hospital exempt

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from taxation in the future, at the same time render service to the community. The question was discussed by the staff and it was moved that the chairman appoint a committee of four, the chairman of the staff to be chairman of the committee to confer with the board and determine just what it wanted and form some definite plan of action. Motion was seconded. The chairman appointed Drs. Miller, Gambrell and Rogers.

Several interesting case reports were reviewed among which were a case of eclampsia by Dr. Cummins and a Cesarean section by Dr. Gambrell.

The following members of the staff were present: Drs. Miller, Stevenson, Rogers, Rawlings, Gambrell, Hugh White, Turner and Cummins.

Meeting adjourned at 10 p. m.

E. J. Cummins, Sec'y Medical Staff.

MASONIC HOSPITAL (EL PASO, TEXAS)

Minutes of the Meeting of the Medical Staff
Held at the Hospital, June 9, 1925.

The meeting was called to order at 8 p. m. by Dr. H. E. Stevenson, chairman of the staff

Minutes of the previous meeting were read and approved.

Dr. Miller moved that the minutes show that May meeting was not held on account of National Hospital Day and that the staff attended the laying of the corner stone of the nurses' new home.

The Efficiency Committee reported that in the future it was the purpose of the committee to have the doctors present whose cases were to be reviewed whether the doctors belonged to the staff or the visiting staff.

The secretary reported that at an informal meeting of the members, Miss Manley was authorized to purchase presents for the members of the first graduation class. Dr. Rawlings moved that the informal action be ratified and the amount of the bill of \$32.60 be prorated among the members of the staff. Motion was seconded by Dr. Barrett and carried.

The following case histories were presented:

(1) Dr. Vance: A woman, married 12 years, gave birth to a child 11 years ago; labor was protracted and her cervix and perineum were lacerated. She has never been well since. She complained of indigestion and gas pains and had been told several times that she was suffering with appendicitis. Dr. Vance saw her first May 8th; she was a frail, thin woman, but in fairly good condition with temperature 99. She had some tenderness over the appendiceal region, her uterus was retroflexed, she was tender over the right tube and ovary. Her white count was 8,600, lymphs 68 per cent; her pulse was 150. On account of her rapid pulse, Dr. Vance hesitated to operate, but sent the patient to the hospital. Three days later he operated on her. She went on the table with pulse 140. Dr. Vance thought it best not to do the perineal operation so opened the abdomen. Free serum was found. Her appendix and terminal ileum, right tube and ovary were bound together with adhesions, her uterus was fairly moveable and there was no particular difficulty encountered in the operation. An ovarian abscess containing about one drachm of semi-purulent material ruptured on removal. The right tube and ovary were removed, drainage was provided for. That evening her temperature arose to 102. Next morning it was 105.5. She was complaining of much pain and during the day her temperature was 106 at 2 o'clock. Dr. Turner at this time made a blood culture which later proved to be negative. Five cc. of 1 per cent mercurochrome was administered, temperature dropped 1.5 degrees, but soon came back to 105 degrees per axilla. Patient died

at 10 p. m., 36 hours after her operation. Her pulse stayed up around 150. Dr. Vance stated that he thought this a case of acute toxemia. The case was then discussed by different members of the staff and it was suggested that this might be a case of toxic goitre and that if a basal metabolism had been done the nature of her condition might have been revealed.

(2) Dr. Ramey: Mrs. F. C. B. Never been pregnant. She was operated on two times in Nebraska. Her father died of heart disease, her mother died of cholecystitis. Her present complaint is profuse menstruation and dysmenorrhea. Examination revealed a fibroid about the size of an orange. Urine was negative. A hysterectomy was performed. On section a large polypus was found in the fundus of the uterus. Patient made an uneventful recovery. Diagnosis was interstitial fibroid with polypus. The case was of interest in that the cause of the bleeding was supposed to be her fibroid when in reality it was her polypus.

The following members of the staff were present; Drs. Stevenson, Barrett, Turner, Vance, Ramey, Rogers, Miller, Rawlings, Garrett and Cummins.

E. J. Cummins, Sec'y Medical Staff.

CHAVES COUNTY MEDICAL SOCIETY

After the Summer recess began meetings again on September 1st. This society has always been regarded as the banner society of the state but unless the members show more interest this season than last it will lose its position.

Only four members were present at the last meeting. Too many outside attractions. One or the other must be abandoned if we are to have an active, working society. C. M. Yater, Secy.

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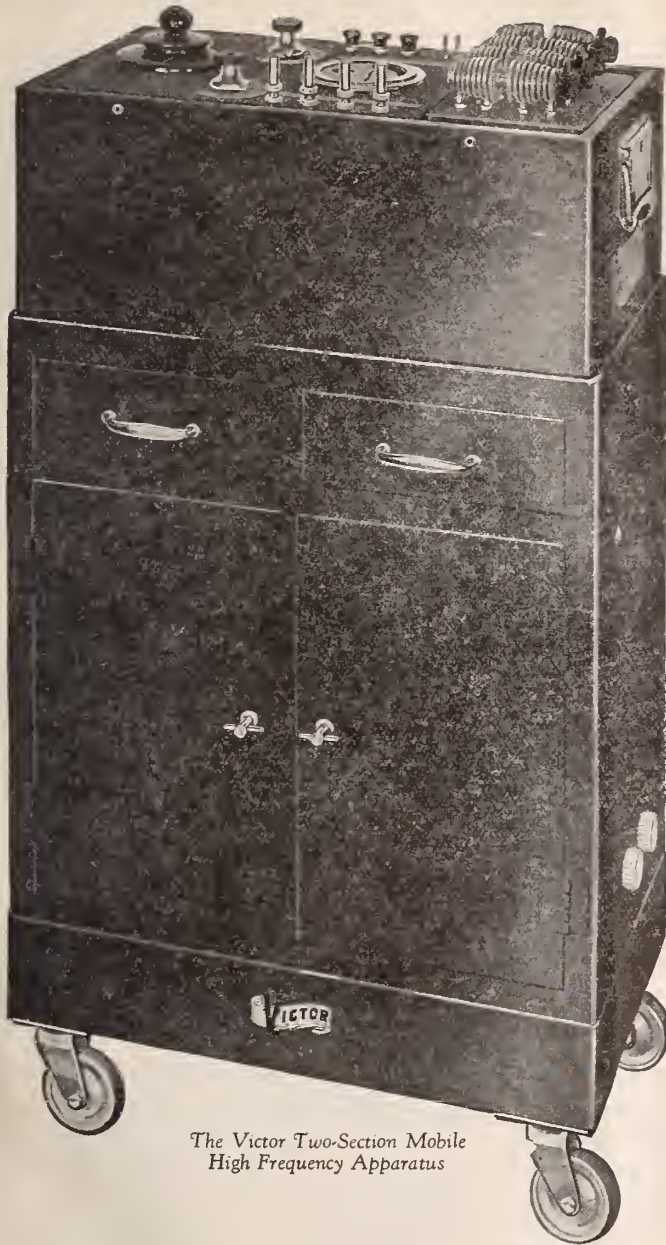
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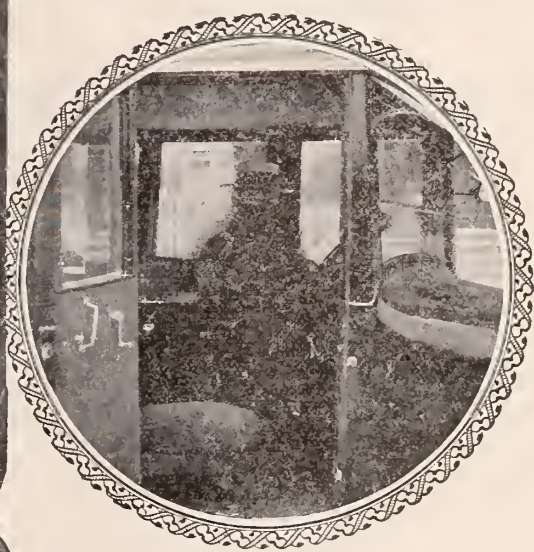
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only as mere introductions to the full possibilities of this form of therapy—bear in mind that the Victor Two-Section Mobile High Frequency Apparatus stands out as an engineering achievement that is destined to prove diathermy an important daily factor in the physician's armamentarium. The machine is held down to compact size without sacrifice in the quality of currents delivered. In short, this Victor machine is not a toy—rather it incorporates the honest intent of its designers to place in the physician's hands an outfit of major calibre with which he may confidently anticipate the best therapeutic results.

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YUMA COUNTY (ARIZ.) MEDICAL SOCIETY SEPTEMBER MEETING

The Yuma County Medical Society held their first fall meeting on Sept. 2nd, at the hospital. Three new members requested admission to the society, namely: Dr. H. A. Reese, by transfer from Cochise county; Dr. J. W. Ives, recently of New Haven, Conn., and Dr. E. B. Bever, the new government physician on the Indian Reservation.

A general discussion regarding plans for the improvement of the present hospital was held. On account of the bonded indebtedness of the county being at its limit, it will not be possible to raise funds to build a new hospital. However, there are funds available for a new building for surgery and delivery room and a new home for the nurses. An architect will be asked to draw up plans for a uniform scheme of enlargements to be carried out during the coming years, so that the hospital can be added to gradually as they are able. The hospital is full to capacity all the time at present.

Discussion of clinical cases was deferred until the next meeting.
E. G. Colby, Sec'y.

PERSONAL NOTES

DR. AND MRS. WILLARD SMITH AND DR. AND MRS. HARRY B. GUDGEL, of Phoenix, have returned home after two and a half months spent in exploring the Hawaiian Islands. It is said that the islands survived.

DR. KIMBALL BANNISTER, of Phoenix, has returned from his summer vacation on the coast, and resumed his practice.

DR. HARRY R. CARSON, of Phoenix, left the middle of September for St. Louis where he will take a postgraduate course under Dr. Wm. McKim Marriott, at Washington University, in pediatrics, returning to Phoenix about November 1st.

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DRS. JOHN WIX THOMAS AND W. WARNER WATKINS, of Phoenix returned September 8th from an automobile tour of the northwest.

DR. ORVILLE H. BROWN, of Phoenix, returned Sept. 5th from an auto tour into the northwestern states, covering Oregon, Washington, British Columbia and California.

DR. HARRY A. REESE, for many years with the Copper Queen Hospital Department in Bisbee, and more recently in private practice in that city, has moved to Yuma, Arizona.

DR. WM. O. SWEET, of Phoenix, has been spending some weeks in Portland, Ore., and vicinity, partly on vacation and partly in special work at the medical school hospital there.

DR. HARLAN P. MILLS, of Phoenix, left Sept. 10th for California, the special object of the trip being to place his two sons in school. The two boys will enter the junior class of Pomona College, having had two years in the Junior College of Phoenix.

DR. JOHN W. IVES, formerly of Milford, Conn., a graduate of Yale University in 1900, has located in Yuma, Arizona.

DR. WILLIS P. BAKER, formerly with the Army Medical School, in Washington, D. C., is now located at Fort Huachuca, and has recently affiliated with the Cochise County Medical Society.

DR. J. T. McDONALD, medical director of the Veterans' Bureau in Phoenix suffered a painful accident the latter part of August. While on a professional trip to Young in Paradise Valley, an automobile accident resulted in a fractured femur. Dr. McDonald is receiving visitors in the Sisters' Hospital in Phoenix, while he patiently waits for the fracture to unite.

DR. WALTER F. DUTTON, of Amarilla, Tex. was a recent visitor in Phoenix, stopping to see

his brother-in-law, Dr. Geo. M. Brockway. Dr. Dutton's name is well known in the field of internal medicine, particularly in connection with the advocacy of intravenous therapy, having published a book on this subject. Dr. Dutton is temporarily located in Amarilla, convalescing from a sinus infection. He holds the position of Director of Hospitals for the University of Pennsylvania Medical School.

DR. F. H. CRAIL, Superintendent of the State Hospital for the Insane at Las Vegas, was a visitor in Roswell early in September.

DR. J. M. WINCHESTER, of Clayton, attended the state golf meet in Roswell early in September.

DR. W. G. SCHULTZ, formerly with the Thomas-Davis Clinic of Tucson, has moved his offices to 26 South Stone Avenue. His practice, as heretofore, will be limited to Urology, Genito-urinary Surgery and Dermatology.

BOOK REVIEW

1924 COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION, Rochester, Minnesota. Octavo of 1331 pages, 254 illustrations. Philadelphia and London. W. B. Saunders Company, 1925. Cloth \$13.00 net.

The 1924 papers from the Mayo Clinic are combined in one volume, an improvement over previous years. The arrangement and selection of the material shows the usual good taste of the editor.

The wide variety of subjects discussed, precludes a review, in the small space allotted us. More space is devoted to medical, than to surgical consideration. The valuable statistics quoted, can probably not be duplicated in any other clinic in the world. The same applies to the enormous amount of clinical material. The volume requires study, rather than mere reading. It is a valuable addition to any medical library.—B. F. S.



For Nursing Mothers

Before advising a mother to put her baby on the bottle, many successful physicians investigate the mother's diet.

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AMERICAN ILLUSTRATED DICTIONARY.
Edited by W. A. Newman Dorland. A new and complete dictionary of terms used in medicine, surgery, dentistry, pharmacy, chemistry, veterinary, science, nursing, biology and kindred branches; with the pronunciation, derivation and definition. Thirteenth edition, revised and enlarged Octavo of 1344 pages with 338 illustrations, 141 in colors. Contains over 2500 new words. Philadelphia and London. W. B. Saunders Co., 1925. Flexible binding. Price \$7.00, with thumb index \$7.50.

The Dorland Dictionary has for years been the best work of its sort obtainable and the new thirteenth edition maintains the old standard. A comparison with the tenth edition of 1920 shows an increase in size of one hundred and forty three pages, a considerable addition to a dictionary of this sort within a period of five years. The derivation of words shown throughout is a most important mnemonic aid. The familiar flexible binding, the paper, print and handy thumb index leave nothing to be desired.—E. A. D.

SURGICAL PATHOLOGY. By William Boyd, M. D., M. R. C. P. Ed., F. R. S. C., Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Octavo of 837 pages with 349 illustrations and 13 colored plates. Philadelphia and London: W. B. Saunders Company, 1925. Cloth \$10.00 net.

The trained surgeon must have at his instant command the subjects of anatomy and pathology. The former may be obtained by didactic methods, but the latter is chiefly acquired in the school of experience where the clinical features are best expressed. The inexperienced operator halts with indecision because he does not recognize the pathology of the tissues involved, thus adding to the dangers his patient must overcome.

There has been no work that claimed the distinction of discussing in particular pathology as seen by the surgeon, until this volume by Boyd came from the press. From bacteriology to clinical features the interest of the surgeon is kept uppermost. Even directions for collection of pathological specimens are not overlooked, though important subjects receive by far the greater attention. It is an excellent effort at systematizing and correlating this portion of the surgeon's field, and putting the information together in a readable way. It corresponds favorably with works on surgical anatomy.

The book is a step in the right direction. Surgery needs it. Textbook information detailed in an interesting manner is the proper adjunct to actual experience. Here those who diligently search for knowledge can find assistance. Surgical Pathology is a worthy addition to the surgeon's library. E. B. R.

THE TREATMENT OF SYPHILIS

A working monogram on the treatment of syphilis has been prepared for the medical profession by the Dermatological Research Laboratories which will be sent with the compliments of the publishers to any physician requesting a copy. This booklet discusses the following in separate chapters:

Introduction, Syphilis Today, Arsphenamine vs. Neoarsphenamine, Sulpharsphenamine, Bismuth in Syphilis, Mixed Treatment.

Methods of Treatment: The Primary Stage, The Secondary Stage, The Tertiary Stage, Neurosyphilis.

Intraspinal Injection. Technic of Preparing: Arsphenamine, Neoarsphenamine, Sulpharsphenamine, Bismuth. Possible Reaction, Sodium Thiosulphate, References.

Requests for this monograph should be addressed to The Abbott Laboratories, Chicago, or the Dermatological Research Laboratories, Philadelphia.

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There will be lectures, clinics and demonstrations, all in charge of well-known physicians and surgeons. For purposes of demonstration, carefully prepared papier-mache or wax figures and models will be used, and in some instances live models will be employed for this purpose.

List of Speakers

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Lincoln, Neb.
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Carthage, Mo.
M. H. Cottle, M. D.
Chicago, Ill.
Elkin P. Cumberbatch, M. D.
London, England
Leo C. Donnelly, M. D.
Detroit, Mich.
Emile C. Duval, M. D.
Chicago, Ill.
Raymond F. Elmer, M. D.
Chicago, Ill.
J. C. Elsom, M. D.
Madison, Wis.
F. H. Ewerhardt, M. D.
St. Louis, Mo.
George W. Funck, M. D.
Chicago, Ill.
J. U. Giesy, M. D.
Salt Lake City, Utah
Dean W. Harman, M. D.
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A. R. Hollender, M. D.
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Chicago, Ill.
Arthur E. Joslyn, M. D.
Lynn, Mass.
D. Frank Knotts, M. D.
Chicago, Ill.

The Convention will be subdivided into the following sections:

Eye, Ear, Nose and Throat.	Neurology.
Gynecology and Urology.	Internal Medicine and Pediatrics.
Orthopedics and Surgery.	Industrial Physiotherapy.
Dermatology, including Malignancies.	Miscellaneous Practice.

Special rooms will be provided on the mezzanine floor for smaller groups attending clinics and round table discussions, and for demonstrations to follow up interesting talks delivered from the platform. There will also be clinics at Chicago hospitals.

Admission will be by card only. A. M. A. rules will apply throughout; either an A.M.A. fellowship card or its equivalent will insure admission. Arrangements for accommodations, etc., will be attended to on request by the Education Department of H. G. Fischer & Co., Inc.

A record attendance is anticipated. There were over seven hundred physicians and surgeons present at last year's Convention, and this year's record will be much higher. Those interested are advised to make plans now and

List of Speakers

Disraeli W. Kobak, M. D.
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Gustav Kolischer, M. D.
Chicago, Ill.
William A. Lurie, M. D.
New Orleans, La.
G. Betton Massey, M. D.
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THE NEW PHARMACOPEIA

The United States Pharmacopeial Convention met in Washington in May, 1920, and appointed a committee to revise the Pharmacopeia of the United States. The new Pharmacopeia was placed on sale August 15. It becomes official January 1, 1926. The responsibility for the scope of the new Pharmacopeia was placed on the twenty-one members who held the degree of Doctor of Medicine. Consequently, the new book should more nearly represent rational medicine than some of the preceding revisions in which pharmacists and pharmaceutical manufacturers largely controlled the situation. From the stand point of the physician, the most noteworthy feature of this revision is the fact that but forty new drugs and preparations were added, while 192 have been deleted. The additions are drugs which give promise of therapeutic worth: thirty-one of them are already described in New and Nonofficial Remedies. The omission of such substances as arnica, calcium hypophosphite, cerium oxalate, coriander, grindelia, hops, lactucarium, three lithium salts, matricaria, prickly ash, musk, parsley, pepper, saw palmetto, stillingia, sumbul and taraxicum is a distinct aid to scientific medicine. An effort has been made to simplify the Latin titles: examples are: the substitution of Cinchophenum for Acidum Phenyleinchoninicum; Methenamina for Hexamethylenamina; Liquor Pituitarii for Liquor Hypophysis. Whereas the present Pharmacopeia requires that two drugs and preparations be standardized biologically, the new book requires that eight must be so standardized. The unit of measurement, the milliliter (abbreviation "ml"), which is used in the present Pharmacopeia has happily been abandoned again and the familiar cubic centimeter (abbreviated "cc.") restored. (Jour. A. M. A., Aug. 29, 1925, p. 678)

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INTER-STATE POSTGRADUATE ASSEMBLY OF AMERICA

The annual congress of this organization will be held in St. Paul, Minn., October 12th to 16th, inclusive. Hotel headquarters will be the St. Paul Hotel. This meeting will present diagnostic clinics in all departments of medicine and surgery by leaders in their respective fields from all over the country. Space does not permit the printing of the detailed program which is quite comprehensive.

Any members of the medical profession of the southwest who find it convenient to attend this meeting will find that the exhibits, clinics and scientific program will repay them.

MERCURY RUBS

It has been pretty clearly demonstrated that the mercury that is rubbed into the skin is absorbed from the sebaceous glands and hair follicles, and to some extent from the sweat glands. What is left on the skin after the rubbing is over is of no service, and cleanliness suggests that it be thoroughly washed off with benzine or other solvent.

What the physicians, convinced of the practicality of mercurial medication by way of the skin, is particularly interested in is an ointment that can be used with some degree of scientific exactness, and one that does not advertise the patient's misfortune to his acquaintances. Parke, Davis & Co. are offering little cakes or blocks of cacao butter containing metallic mercury, which they call Mercurettes, and which the patient can conveniently carry with him, on occasion subdividing them into halves or quarters for use. Each Mercurette contains 50 grains of mercury, uniformly distributed throughout the mass. See advertisement in this issue.

THE appetite of the convalescent patient is a "finicky" thing, it tires so easily of the foods that the patient needs to build him up.

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Convalescent's
appetite*

AMERICAN BOARD OF OTOLARYNGOLOGY

The next examination given by the American Board of Otolaryngology will be held at the Cook County Hospital, Chicago on October 19th, 1925. Application should be made to the secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

SCARLET FEVER. During the past year there have been greater definite advances in our knowledge of the etiology and treatment of scarlet fever than in any of the other communicable diseases. Scarlet fever streptococcus antitoxin unquestionably marks the greatest advance in preventive medicine in the last decade. This new product is destined to prove as important and valuable a factor in scarlet fever as is diphtheria antitoxin in diphtheria.

The hemolytic streptococcus has been definitely established as the causative agent, as it has been suspected of being, for many years.

The infection is transmitted through air borne droplets of saliva, or by contact with objects soiled with saliva or nasal secretions, or through contaminated milk; it is not transmitted through the skin or desquamated scales.

The Dick test seems to be reliable for detecting those persons who are susceptible to scarlet fever, but is complicated by the fact that one negative reaction does not always indicate immunity. The Dick test comes within twenty-four hours and fades as quickly, different somewhat from the Schick test.

The matter of immunization with toxin has not been worked out in all details, the best dose for this purpose not having been established, nor has it been established how long immunity lasts.

The new scarlet fever streptococcus antitoxin which has just been licensed by the United States Government bids fair to make the year 1925 memorable in the history of medicine. It will rob scarlet fever of its terrors for its therapeutic results are nothing short of marvellous. The dosage varies with the severity of the attack, and the serum may be given intramuscularly or intravenously, and the effects are striking. The rash begins to fade in six hours and the temperature drops; in twelve hours it may be normal; there is a drop in the leucocyte count and pulse rate and rapid subsidence of the angina. Children sit up and play the next day. In 93 cases recently reviewed by Blake, 92 were cured and one who was treated late in the disease died.

The Present Status of the Control of Scarlet Fever. Ralph Oakley Clock, M. D., Pearl River, N. Y. Med. Jour. & Record, Aug. 5, 1925, p. 158.

SCARLATINAL ANTITOXIN. This is the second report of this author on the use of Dochez's serum intravenously.

This report covers 42 patients, 32 of whom received the serum intravenously and 10 intramuscularly.

The dose of the scarlatinal antitoxin should depend on the age or size of the patient, the severity of the infection, the method of administration, and the content of the antitoxin in the serum. His conclusions are:

(1) Unconcentrated antitoxin is safer for intravenous administration. (2) Concentrated antitoxin is safer for intramuscular administration. (3) The earlier the antitoxin is administered, the dose being adequate, the less the incidence of complications. (4) Intravenous administration causes the earliest fall of temperature. (5) The quantity of

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Baltimore, Maryland

serum given does not seem to affect the incidence of chill or the development of serum rash.

Further Observations on the Administration of Dochez's Scarletinal Antitoxin. C. L. Thenebe, M. D., Hartford, Conn. Boston Med. & Surg. Jour., Sept. 10, 1925, p. 497.

THE SELECTION OF A PHYSICIAN

The selection of a physician for an operation or as a family doctor, is usually made with some care. We consult those who have employed physicians and are governed largely by their recommendations. But having selected a physician, we follow his advice. We trust him even to the extent of submitting to operations that may have serious results.

The point is, we trust THE MAN WHO KNOWS. Now, doctor, the institutions and the firms advertised in this Journal were carefully investigated before their announcements were printed here. The medicinal products were submitted to laboratory tests before they were accepted by the Council on Chemistry.

On the same principle that patients trust you about matters with which you are informed, so your publishers urge you to trust their judgment and buy goods from the advertisers who are admitted to these pages. Other considerations being equal, you should give your advertisers PREFERENCE because you know they are believed to be trustworthy. Don't speculate or experiment! Trust the APPROVED firms and goods!

A Grin's No Sin

WE'LL TAKE LAUGHING GAS

(From the Kalamazoo (Mich.) Gazette)

Miss Maxine Davis will give private dancing lessons, ballroom and anaesthetic, at her home.

WHY THE GREAT RUSH?

(From the New York Herald Tribune)

Mr. and Mrs. _____, whose summer home is at Roslyn, are being congratulated on the birth of a daughter. . . . Their wedding will take place in August.

THEN THE PROOFREADER LEFT TOWN

Miss Lucille Rife as flower girl carried a basket of roses and sweet peas. Mr. Robert Jones of Altoona wore a frock of pink georgette and acted as best man.—Lancaster (Pa.) Intelligencer.

THOSE FAMOUS HOLLOW LEGS

Shaw was shot in the leg after an automobile chase through the downtown district, by the officers who suspected it contained liquor. No whisky was found, however.—Atlanta Journal.

"Gimme a tablet."
"What kinda tablet?"
"A yellow one."
"But wat's the matter with you?"
"I want to write a letter."—Ex.

ANOTHER TRIUMPH FOR SURGERY

Richard, son of Rev. D. K. Laudenslager, had his tonsils removed in the Riverview Hospital, Norristown, yesterday. His leg is improving and he uses a cane instead of crutches.—Schwenkville (Pa.) Item.

REMARKABLE RECORD

Rodolfo Gaona, Mexico City's pet bull-fighter, has bade farewell to the arena after fighting bulls for twenty years without being killed once.—Louisville Courier-Journal.

THE RICH NEBRASKA SOIL

Even the canary that has been raised from the canary seed by its mistress often expresses warm affection for its mistress.—Lincoln (Neb.) State Journal.

MOONLIGHT A LA CARTE

Doan Trail Riding Academy—day or night ride in the moonlight.—Muskegon (Mich.) Chronicle.

Mother was busy, cleaning a chicken for the family dinner.

Little Dorothy watched the process with keen interest, especially when the insides were being taken out of the fowl.

"Mother," asked the child, finally, "just what are you looking for in there."—Clipt.

Lady: "Where is my seat?"

Usher: "Your seat is on the end of U, madam."

Lady: "Sir!" Clipt.

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Dosage: All doses are alike. Each syringe contains one dose (2c.c.). The amount and strength of the virus is the same in each of the 14 doses. One dose is given daily for fourteen days. It is not necessary for the intervals between doses to be exactly 24 hours, for the time of day for the injections can be arranged to suit the convenience of the patient and the physician. Children are treated with the same dosage as adults.

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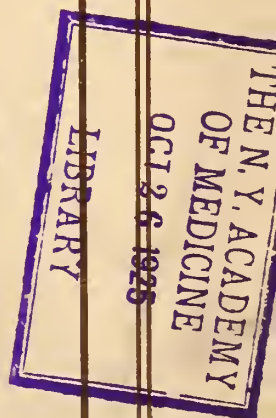
VOLUME IX

OCTOBER, 1925

No. 10

OFFICIAL ORGAN
OF THE
NEW MEXICO MEDICAL SOCIETY
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
OF THE SOUTHWEST

FOR TABLE OF CONTENTS—SEE ADVERTISING SECTION PAGE 1



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VOLUME IX

OCTOBER, 1925

No. 10

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THE TREATMENT OF MENTAL ILLNESS

KARL A. MENNINGER, M. D.
TOPEKA, KANSAS.

Medical Director of the Menninger Psychiatric Hospital and the
Neuropsychiatric Clinic, Topeka.

The mind is the captain of a ship. Some sail through stormy seas with a steady keel and calm; others pitch and rock in the smoothest waters. Much depends upon the ship's builders; but much, too, on the times and seasons and fortuitous winds; and much, finally, on the captain. The nervous patient is a ship pitching in the storm; the "insane" patient is a ship temporarily foundered. Suicide, homicide, perpetual invalidism, pernicious forms of mental illness—these are ships wrecked. What can be done to save them?

The function of mind as now conceived is the adjustment of the individual to life. This involves all the perceptual, emotional, intellectual and volitional maneuvers necessary to apprise him of the world in which he lives and enable him to behave himself in a comfortable and efficient and productive way in whatever part of the world he inhabits. In early life this is not difficult; most of the environmental bumps are shielded or softened for the infant in arms, who needs only cry in order to receive food, or wave his arms in order to be carried about. It is a far cry from this era of simplicity to the stage where transportation involves railroad systems and automobile hazards, and where daily bread necessitates a life work and a daily grind. But this change from the simple to the complex adjustment has to be made by every individual.

In treating the nervous patient, i. e., mentally* ill patient, what we really do is to facilitate a difficult, a painful, a failing adaptation. The symptoms of this pain or this failure are legion; they may be considered under diagnostic groupings as neurotic, melancholic, schizophrenic, epileptic, neurosyphilitic, etc. The frankly structural, infectious, and traumatic cases are

not excluded, but the technique of their readjustment is much more familiar to the medical public and hence will be slighted in this discussion in favor of the so-called "functional" illnesses. These are maladjustments where the factors of failure are less obvious. For example syphilis is more obvious than marital discontent; hence the neurosyphilitic generally gets better treatment than the psychoneurotic housewife.

The nervously ill patient is a square peg in a round hole. Adaptation may be most easily brought about by changing the hole in some cases; in others by whittling down the peg. How and by whom are these changes to be effected?

I. MINOR PSYCHIATRY

The vast bulk of nervous and mental disease is of necessity treated by the general practitioner. The correction of the maladjustment responsible for any nervous symptom is not difficult and the family doctor has the skill and the authority to effect it. This I call minor psychotherapy, comparable to minor surgery, which every general practitioner must do. It is applicable to nervous manifestations of conscious or "situation" conflicts.

The key to the successful performance of minor psychotherapy is interest in the nervous patient, sufficient to permit a complete eliciting of the uppermost parts of the patient's mental content. If the pain

*In an address to physicians it should be unnecessary to make the point about which the laity still remain so ignorant, namely that the word "nervous" is merely an euphemism for "mental"—that "nervousness" means (mild) mental malfunctioning, and that a nervous illness is always a mental illness.

and stress are relatively slight, this will give relief; if they are considerable, treatment should be deferred to the specialist.

Sudden stresses often serve as the precipitants of nervous illnesses, such as some of the many types of mental and nervous pictures of the war called "shell shock." Persons thrown into jail sometimes develop what were formerly called "prison psychoses." But these situations need not be so spectacular as war, or so gloomy as jail, or so sudden as either; they may occur in the most peaceful of homes and develop slowly over many years. It should never be forgotten that the "situation" is only the straw that breaks the camel's back, or rather it is the sack of wheat that bends the camel's back; it is sufficiently heavy to make the difference between success and failure; if it be removed, the patient could carry on his life comfortably, whereas with it he can proceed only with groans and screams (i. e., with hypochondriacal complaints, anxiety, sleeplessness, phobias, inefficiency, tremors, depressions, etc.)

These cases are relatively simple to "treat" once the factor of difficulty is found. This, however, often requires the most painstaking study—historical, physical, neurological, social, psychological, laboratory and observational. The diagnosis may require weeks; treatment may sometimes be completed in an hour.

EXAMPLES

Miss E. 869, came in complaining of a backache. She had had it for three years. With it were the usual neurasthenic symptoms of fatigability and pepllessness. Thorough examinations, including x-ray, were negative. She had had various attempts at "suggestion" and manipulation treatments (osteopathy and chiropractic) which had failed.

Careful study of the history brought these facts together: The backache began "when I came home to take care of mother, aged 70, who is an invalid." The patient was 33 and had been engaged to be married for several years. She had not gotten married because she felt she ought to take care of her mother. The man to whom she was engaged became restive and did not want to postpone the marriage any longer.

The symptom of backache, in other words, was a symbolic way of saying that her burden was greater than she could bear, and that like the old man of the sea her mother was on her back. Her self-respect combined with other factors to "censor" this from her consciousness. Treatment consisted in pointing out the obvious logic, advising her to face it frankly and make her decision consciously rather than unconsciously and to make some study of the psychological phenomena involved (recommending certain books). She has been well ever since.

In some cases it is possible to solve the problem by making an indicated change in the situation itself; e. g.:

Dorothy, No. 965, would give no real description of her symptoms until I persuaded her mother and father to leave the room. They had previously told me that they thought she was going crazy. She gave

me a list of complaints half a page long, the chief of which were spells, dizziness, hot flashes, aversion to having people around, pepllessness.

She also told me directly and indirectly that her mother had died five years previously, that she had ten living brothers and sisters, that she had a new stepmother and that she had an old and very determined, domineering, autocratic father. She was 28 years old and making her own living but she remained under the parental roof.

It seems like little more than common sense to advise her to get out of a home situation as painful as this must have been to her and to paddle her own canoe. I made this recommendation to her, to her father and to her physician, and all three accepted it heartily. She left a few weeks later for a new post of duty two thousand miles away.

II. MAJOR PSYCHIATRY

Very often no such easily removable thorns can be found in the lion's paw. The friction of the maladjustment may have gone so far that even if some thorns are removed the pain is unassuaged. Or again the troublesome factors may be too numerous, or they may be of a sort that cannot be removed for other reasons, perhaps because they are certain necessary features of the patient's life.

A certain proportion of persons develop these more severe forms of nervous illness—the frank neuroses and psychoses. Their treatment is much more difficult than the preceding. It frequently requires highly specialized technical skill. This is embraced in what I have called major psychiatry, comparable to major surgery, and contrasted with the previous group of symptoms described as minor psychiatry.

The therapeutic attacks are of two sorts, those made by changing the patient's environment radically and those made by changing the patient himself. Both will be explained in some detail.

1. EXTERNAL CHANGES AND MEDICAL MEASURES

For some of these cases an environmental alteration must be made, a temporary radical removal of most of the ordinary living environment, with substitution of temporary tolerable solaces. This permits the psychic wounds to heal, as it were, and a new and greater resistance (mental strength) to be built up.

The nervous patient must sometimes be quarantined against society, for his own sake, just as a small-pox patient is quarantined for society's sake.

Isolation in a hospital is such a method. In this situation the patient is surrounded by a neutral environment. The nurses and physicians do not count since they excite no emotional response. All relatives, friends, acquaintances, telephone calls and letters are temporarily excluded. It is hard to make some relatives understand that they are their loved one's worst enemies (in his neurosis); they often get quite dis-

grunted because we advise against their visiting the sick one; but the patient rarely makes much fuss about it, because he knows, or he soon finds out, that he rests much more easily in their absence. In all hospitals for the nervously ill where visitors are permitted on Sunday, Monday is looked forward to as a bad day. The reactions from the visitors become manifest.

Isolation alone, however, is apt to be unbearable, and it can be advantageously combined with measures directed toward sedation and support. The combination of isolation, sedation, systematized rest, physiotherapy and force feeding was made justly famous by Weir Mitchell, of Philadelphia, a few decades ago. In variably modified forms, it is probably still the best method of treating certain types of mental illness, particularly those whose conflicts are not accessible or whose symptoms are not amenable to extra-institutional therapy.

As we apply it, the Weir-Mitchell or "rest cure" treatment consists of

1. Isolation.
2. Systematized rest.
3. Hydrotherapy and massage.
4. Dietary regulation.
5. Specialized hospital provision.
6. Specialized nursing.
7. Graded return to social intercourse.

Medicine and surgery as specially indicated.

Each of these will be briefly described and discussed.

1. **Isolation** has been discussed above.
2. **Rest.**

Rest is not a panacea. There are many patients with nervous diseases for whom rest in the ordinary sense is disadvantageous. Patients receiving psychoanalytic treatment, for example, do better if they are able to carry on their customary routine duties.

But in cases where there is indisputably a factor of exhaustion, rest is a therapeutic instrument of the greatest importance. The exhaustion may be primary or secondary, i. e., it may be a cause of the nervous imbalance ("breakdown"), or it may be a result of the terrific emotional storms and psychic conflicts; or it may be both. In the type of cases under discussion the rest regimen is our most useful means.

It is important to specify, however, that a certain kind of rest is necessary. It is almost impossible for a patient to rest at home, and in my practice I refuse to countenance it at all. Neither can it be done as a rule by taking trips or visiting relatives. Many physicians cause themselves and their patients much unhappiness by advising trips. Mentally sick persons do

not stand travel well; it fatigues rather than rests, for after all **the patient cannot get away from himself**, no matter how far he rides. He comes back with his symptoms aggravated, and with a conviction that his doctor was just trying to get rid of him.

Systematized rest for nervous and mental cases, as originally outlined by Weir Mitchell entails absolute rest in bed **in a hospital**, at first for twenty-four hours daily. This means that the patient does not get up for meals or to go to the toilet but is waited upon at all times (hence necessitating expert nursing); it means no visitors and no messages; it means complete relaxation, physical and mental.

It does not mean that the patient's time should be entirely unoccupied; as a matter of fact the routine procedures of physiotherapy, hydrotherapy, dietotherapy, etc., together with the hours allotted for sleep, fill up the day quite comfortably. Furthermore it should be remembered that these patients do not suffer the pangs of ambition and energy thwarting as would a well person similarly treated.

The following illustration helps the patient to "get the point" of rest in bed.

The heart beats approximately ten beats per minute slower when the body is recumbent than when it is erect. At each contraction the left ventricle forces out about 8/10 of a pound of blood. This means that in one minute the heart is saved 10 times 8/10 pounds, or 8 pounds of work, simply by the expedient of lying down instead of standing up. In an hour this amounts to 480 pounds, and in a day, 11,520 pounds, or nearly six tons! If to lie down for twenty-four hours can save the body six tons of effort on the part of one muscle alone (to say nothing of the energy required to maintain the erect posture) the biological economy of the rest treatment must be obvious.

3. **Physiotherapy.** Massage* was one of the measures included by Weir Mitchell in his original outline of treatment for "neurasthenia." Massage is of unquestioned benefit in many nervous and mental cases, and it is not at all surprising that the osteopaths, crude as their technique of massage is, are so warmly supported by certain nervous patients whom they have apparently benefited. (Unfortunately for them the

*"The 'Swedish movement cure' was introduced into Sweden in 1813, by Peter Henrik Ling, and was revised, in 1860, by Mezger of Amsterdam, but the movements which they practiced and taught were not original. Their fundamental principles were the same as those ascribed in Chinese writings three thousand years earlier; the same as those used by the Brahmins of India, by the Egyptian priests, by Hippocrates, Galen, Rufus of Ephesus,

and other physicians of ancient Rome and Greece and by Hoffman and other noted physicians of Middle Ages.

"To be an expert masseuse, requires a thorough knowledge of anatomy, and constant practice. The limited number of lessons in massage, generally included in the curriculum of a nurse's course does not fit her to undertake the treatment of severe cases."—*Practical Nursing*, Maxwell & Pope, pp.856-860.

osteopaths are evidently renouncing massage in favor of the ridiculous hippodrome calisthenics of the chiropractors, "manipulation.") Expert masseurs and masseuses are extremely rare in the west; in a few localities where they have come in from the east and from Europe, they have been poorly supported by the medical profession. Of course in the eastern cities they are a recognized adjunct to medical treatment, and physicians prescribe so much of certain kinds of massage, for which the patients then repair to the masseur or masseuse recommended.

Why massage benefits mentally sick persons (as well, of course, as many others, e. g., spastic, paralyzed, ataxic, postfracture cases, etc.,) merits a longer answer than space permits. In part it depends upon the generally improved circulation which it facilitates; in lesser part, perhaps, upon the passive physical manipulation of the skin and muscle; but certainly also to a large extent upon certain psychic processes largely in the unconscious except for the fact that it is pleasurable—"it feels good," related to what is known in technical psychoanalytic terminology as cutaneous erethism. Hence the personality of the masseuse is of importance, and in our own work we count ourselves most fortunate in having Mrs. Ingeborg Lindquist Swanson, who received her anatomical and physiotherapeutic training in Dr. A. Kjellberg's Institute, Stockholm, Sweden.

Hydrotherapy is of equal or even greater benefit in many mental cases. In general there are three types of hydrotherapeutic treatment:

(a) Showers, douches, etc., consisting in a stream or streams of water of prescribed and regulated temperature thrown upon the patient for short periods of time, usually with the idea of provoking an immediate cutaneous reaction.

(b) Cold or warm sheet packs, in which the patient is wrapped in sheets wrung out of water of a prescribed temperature, and next wrapped snugly in woolen blankets and allowed to rest in a darkened room for half an hour up to as long as two hours.

(c) Prolonged neutral immersion baths, in which the patient is submerged on a hammock slung in an extra-length tub, into

which water is fed from a thermostatic control at a standard and invariable temperature, flowing out of the tub at the foot. In this tub the patient remains from 30 minutes to 24 hours, there being no contraindication in most cases to long baths.

It is generally accepted by institutional psychiatrists that hydrotherapy is of more value than drug therapy in sedation, i. e., in quieting disturbed cases. There is no doubt from our experience but that it is of immense value in stimulating improved psychic functioning.

Calisthenics, active and passive exercises, and graded outdoor exercise is prescribed in all cases with reference to individual requirements and capabilities.

4. **Dietary Regulations.** Most nervous and mental cases are undernourished, and as the illness runs on they become more so. There is often a considerable anorexia and even sicchasia. Consequently it is important to make unusual efforts to maintain nutrition. Weir Mitchell advocated deliberate overfeeding. Our general plan is to prescribe the full regulation hospital diet, which in our institution is usually liberal, and in addition egg-nogs, grape juice, with milk and crackers, apples and cheese, candy, or similar refreshment between meals, routinely.

In some cases special diets are of course imperative. Many of our cases are diabetics with nervous and mental complications. These are kept on a diabetic dietary regimen under the direction of Dr. C. F. Menninger. Others are cases of hypopituitarism and other types of obesity, and these require an anti-fat diet. Still others are nephritic and peptic ulcer cases, and these of course require particular diets.

5. **Specialized Hospital Provision.** The type of treatment here presented may be advantageously given in a general hospital, but certain special provisions must be made. The requirements have recently been presented by the writer in *The Modern Hospital*, (July, 1924 issue, Vol. XXIII, No. 1). The indispensable factors being quiet, safety, and good equipment. For some cases, however, sanitarium provision is preferable. The practicing neuropsychiatrist must have both types of facilities available.

6. **Specialized Nursing.** It will not do to put nervous patients, hospitalized to afford isolation and a temporary respite from the unbearable difficulties in their outside life, in charge of nurses inexperienced in the care of such cases. There is a specialty of psychiatric nursing just as there is a specialty of psychiatry. This explains the increasing demand for graduates of good state hospital training schools. The nurs-

ing must be not only sympathetic, but intelligent, skillful and cautious. The personality of the nurse is often the peg upon which the patient hangs his difficulties. This topic is also discussed in the author's Modern Hospital article.

7. Graded Return to Social Intercourse. Gradually the patient may be given simple but increasingly difficult tasks in readjustment. Occupational therapy as it is called, i. e., various creative or constructive manual activities supervised by an expert in craft work, has this aim. We have even greater faith in a gradual and carefully regulated increase in opportunity for social contacts; first with other patients, then with a few outsiders (preferably not relatives) and gradually the relatives and children. Regulating this return to society is a most difficult matter; patients want to go home and their relatives want them, the expense of remaining in the hospital adds to the urge, and it is very difficult sometimes to withstand the pressure brought to bear. Yielding in this matter is sometimes uneventful, recovery (i. e., reestablished adaptation, rehabilitation) goes on successfully; frequently it is disastrous and the patient has to return to the hospital for another stay.

MEDICINAL TREATMENT

Nervous and mental patients are often overdressed. This does not mean however, that they should never be given medicine. There are a certain few medicines which are of prime importance, either as symptomatic or curative agents, or both. But nothing requires more discrimination in personal and specific selection than does the administration of drugs. Hence it must suffice here to list the more important, with a few words concerning each.

Neosalvarsan, sulpharsphenamine and similar arsenicals have their standard value in neurosyphilis. We usually combine them with mercury and iodides.

Iodides (especially of sodium) are also useful in cerebral arteriosclerosis in large doses, while in small doses they facilitate the utilization of thyroid extract.

Thyroid extract is useful chiefly in hypothyroid states; we do not use it routinely in other conditions.

Veronal (barbital) is the most useful drug to induce sleep. In ordinary doses it has no toxic effects; it has no hangover in most cases; it is not habit forming.

Luminal-sodium, which may be given hypodermically, is exceedingly valuable in combating agitation and psychomotor restlessness.

Sodium bromide is similar to luminal-sodium in action but is somewhat less ac-

tive and cannot be given hypodermically.

Luminal (not the sodium salt) is chiefly useful in convulsive phenomena.

Pituitrin (pituitary extract, posterior lobe) is useful in posterior lobe defect syndromes, and also empirically in schizophrenic pictures.

Antuitrin (pituitary extract, anterior lobe) is useful in anterior defect syndromes. (Of course anterior and posterior lobe extracts may be given together.)

Atropine is useful in vagotonic conditions.

Ovarian extracts are probably of some benefit in the psychoses directly associated with the menopause.

Morphine and hyoscin are useful as sedatives only in an emergency. They are powerful but variable and hazardous.

SURGERY

The surgical procedures which may be considered as directly concerned with treatment of nervous and mental conditions are relatively few in number. Of course the most important is cranial decompression in skull fractures and other conditions of increased intracranial pressure. Craniotomies and laminectomies for tumor removal come next.

Tonsillectomies and thyroidectomies as well as tooth extraction and other attempts to remove foci of infection are sometimes indicated but they have been greatly overemphasized, in my opinion. In a general way anything which lessens the burden of the organism permits easier and more efficient distribution of psychic energy. This, however, does not justify wholesale surgical onslaughts. It is exceedingly inadvisable for the surgeon to do a uterine suspension, a perineorrhaphy, or similar operation with the idea that while the patient does not urgently need it, she will be benefited mentally. I have many times seen patients who have been made exceedingly bitter toward well meaning surgeons because the operation did not cure their despondency, excitability, or whatever it was. As a matter of fact it often makes them worse. In several cases I have been called by surgeons to see patients who had become delirious after operations and in one instance that I recall the patient was under mental treatment for over a year following an appendectomy for "chronic appendicitis." An earnest and sensible plea is made by a surgeon, Dr. Wm. B. Haggard, as an editorial in *Surgery, Gynecology and Obstetrics* for December, 1922, entitled **The Unnecessary Operation**, which every surgeon should read.

Physicians and surgeons sometimes defend this treatment on the basis that it

acts as a form of suggestion. This is true, but like all suggestions it is apt to be transitory in its effects and it is too severe a form of suggestion to be justified by transitory effects. It may seal the patient's fate forever by irrevocably fixing him in his neurosis. The following is an example:

Case History of Treatment by Surgical Suggestion that Failed: A man of 42 was referred to us with a pathetic letter from his physician saying that he had been for five years under the care of a well known surgeon in a large city who had removed his appendix, his tonsils, and some teeth, who had done spinal punctures and other diagnostic procedures including much stomach pumping and the like, who had drained his frontal sinus and his pocket book, of a capable internist whose ten-page report was sent along with the patient when he came to our clinic.

When we saw him, his complaint was precisely that with which he first saw a doctor five years previously, "weakness, headaches, nausea and vomiting." When one attempted to get details of these symptoms there was a great deal of vague describing with nothing described. He used all sorts of phrases such as "loss of power," "sense of pressure," "pretty good," "all in." He told of his troubles with a sad and mournful voice and manner and at the same time with a facial expression which said plainer than words, "Damn you, don't you dare to make me well!"

Mental examination revealed very clearly that this man's interest in life was his sickness. The surgical manipulation he had received so confirmed him in his invalidism that I regarded him as a hopeless case. As I wrote his physician, "the combination of poverty, surgery and a weak nervous system is a pretty disastrous one, and after a surgeon has monkeyed with a case for five years and sent him home poverty stricken and neurotic and as full of complaints as ever, about the only thing left to do is to institutionalize him." Commitment to the State Hospital might cure him but his unconscious knows this and will probably forestall any such interruption of the pleasure he is deriving in his neurotic escape from reality.

Deceiving the patient is never justifiable; it is poor therapy at best, and dangerous and unprofessional at worst. There is an apt and authenticated story of a doctor in our state who had a patient who insisted that she had two frogs in her stomach. No argument could dissuade her. So he resolved to cure her by "suggestion," and after securing two small frogs which he concealed in his pocket, he passed a stomach tube, evacuated some gastric contents, and while the patient was retching, cast the two frogs surreptitiously into the basin. "There they are," he cried, "now we have them out and you're all right. There were some frogs in there after all." "Yes," said the patient, "of course there were. And there's a whole lot more where these two came from."

Contrast the above cases with the following:

Mrs. M, 817, began to be sleepless, fearful of being alone, ambitionless, exhausted and worried and terrified by trifles. She went to a celebrated surgeon

who examined her and told her that she needed a dilatation and curettage, which he proceeded to do for her. She went home no better of her nervous symptoms and went from bad to worse.

She then consulted another surgeon who was wise enough to refuse the abdominal operations which she now thought she must have for menorrhagia. He referred her to us and she was put on treatment such as outlined above. It required fourteen weeks in the hospital to put this patient back on her feet, her mental and menstrual symptoms alike disappearing. She went home, then, and continued under advice and treatment for several months but has remained perfectly well ever since. This woman is a firm friend of the second surgeon in the case and a firm enemy of the first one.

2. INTERNAL CHANGES, PSYCHOTHERAPY

In some cases the treatment must be directed primarily toward internal rather than external modifications. **Three Thousand Years of Mental Healing** is the title of a book of historical medicine recently published. But scientific mental healing really dates back to an interesting episode which took place in connection with the life of the great philosopher Emmanuel Kant.

Kant suffered from gout. He discovered that by "directing with effort my thoughts toward some chosen indifferent object, for example, towards the many associated ideas brought up by the word Cicero," he could be distracted from the pain of his foot and fall asleep although his swollen toes would prove next morning that his pain had not been imaginary. He wrote a book on this phenomenon which really constitutes the beginning of scientific mental healing. (Scientific mental healing is to be differentiated from other sorts of mental healing, many of which have been temporarily successful, in that the purpose, technique and mechanisms have been studied by the scientific method and the results correlated. Interesting as a history of the development of psychotherapy would be it is entirely without the province of this paper, which will be devoted to a general discussion of the theory of the existing types.)

In general all psychotherapy depends upon the solution of psychological conflicts in the mind of one person by the efforts of another person. As is now well known, these conflicts may be conscious difficulties or unconscious struggles, or both. Apparently the unconscious conflicts or "complexes" are the more numerous and the more powerful, but the solution of the surface difficulties often proves to be sufficient to restore peace by a successful repression of the subterranean elements. The symptoms and diseases for which psychotherapy is useful are those in which these struggles from the unconscious push their way into the conscious life, usually in disguise. Everyone has impulses and desires which ordinarily remain unconscious be-

cause the individual is respectful of the wishes of society and not only refrains from offending but refrains from even thinking of offending.

Consideration of others limits the satisfactions of the self. These restrictions and renunciations we are glad to make for the sake of society, i. e., we **suppress** certain wishes. But in addition to these known wishes there are many primitive impulses which are active and must be held back and yet of which we are entirely unaware. (This holding back, unconsciously, is known as **repression**.) We do become aware of them under certain circumstances; from scientific study we have learned to recognize certain ways in which case it is called sublimation and requires no treatment. Or it may be useless to society, serving only as a safety valve; dreams are such a disguise. Or, finally, the disguise may be not only useless but painful and dangerous and obnoxious. One of the commonest forms of this type of disguise is the neurotic symptom.

From this it may be seen that the function of psychotherapy is to strengthen a failing repression, or to remove certain unnecessary repressions and lighten the load, or finally to change the form of the disguised escapes from the harmful to the useful variety.

This is what everyone has in mind when they say of a neurotic patient, "If she had something to do to occupy her mind she would get over her headaches." Their theory is right as far as it goes; the difficulty is that they are neglecting certain facts, one of which is that the change from a symptom to a sublimation cannot be made simply as the result of an exhortation. There is a great deal of **resistance**—(which is usually unconscious)—on the patient's part, to any such change and it is as difficult or impossible for him to do this without help as it is for a man in the ocean to swim to shore. He knows well enough that would save him but he usually feels it as the bitterest irony for one to tell him so, just as a drowning man would feel about being told to swim to shore to save himself. It is true but it is impossible.

RESISTANCE

A study of the reasons why it is impossible, the "resistance" as it is technically known, is one of the most important contributions to medicine made by psychoanalysis. It involves the existence in every individual of a Mr. Hyde as well as a Dr. Jekyll. This dual personality is often very apparent, but whether apparent or not it is always active. The neurotic symptom is there for a reason; it has a purpose and

satisfies a certain craving of the patient's unconscious. Consequently any effort to change it meets with opposition, just as a child cries when one takes from it a knife even though the knife is to be replaced with a more satisfactory plaything. When the substitute arrives the crying stops but that doesn't keep the baby from clutching the knife and resenting the deprivation. In a similar way every neurotic patient opposes a dissolution of his symptoms, or in other words, **in one sense does not want to get well**.

This could be illustrated with scores of patients. Every doctor sees it every day. I will cite some of our own cases.

Mrs. V. 951, a woman of 47 came a long ways to tell a long tale of much woe, the mere description of which occupies three typewritten pages in our records. For years she had suffered from a pervading gloom with outbursts of sobbing and screaming at times, a great irritability, intolerance toward certain people, disinterestedness in her home and friends, unreasonable fears about all sorts of things, queer little impulsions to do stunts, a feeling of peeplessness, weakness and general miserableness. While she was giving the history she sent her husband on three or four errands such as getting her a drink, finding her handkerchief, etc.

After a thorough examination we recommended psychotherapy and told her that this treatment would probably make her well. Instead of comforting her it seemed to upset her and the next day when her husband tried to bring her to the office she said she felt too ill to come and the husband came to apologize. I explained the nature of resistance to him and told him that he ought not to aid and abet her in squirming out of treatment. He wept openly and said, "I have been her slave all my life and this is the way she rules me and I am powerless to do anything. I realize what you say is absolutely true, but I am not man enough to call a halt and so I will just have to take her home and put up with it."

This resistance is shown in all sorts of ways other than mere refusal to take treatment. One of my patients recently began treatment with a great flourish, talked about it to everyone, told me what a wonderful thing she thought it was, etc. But then she began to break appointments on one pretext or another and finally she quit coming altogether. Another patient made several appointments and found very good excuses for breaking them but when she finally got to see me she told me she had been trying for weeks to get an appointment and if I would give her an hour she wouldn't break it for anything, etc. She scolded me because I wouldn't begin the treatment that very day. She wanted an appointment the next day, which we gave her. She never came back.

The resistance takes many other forms too numerous to relate in detail. One of them is to take a dislike to the doctor; another is to have dreams in which the doctor is represented as a bad man. One of

my patients said that the expression "he is an old devil" kept coming to her mind constantly when she was in my office and she couldn't think who on earth it could apply to!

TYPES OF PSYCHOTHERAPY

All methods of psychotherapy aim at accomplishing the overcoming of this resistance and the transforming of the patient's energy from harmful to useful forms by one of two general methods:

1. Suppression.
2. Expression.

Suppressive psychotherapy is that in which the physician assumes an active attitude toward the patient's conflicts and endeavors to push them back into place. **Expressive psychotherapy** endeavors to remove them. It is something like the difference between medical and surgical treatment except that in psychotherapy the patient must be his own surgeon. Suggestion, persuasion, hypnosis, autosuggestion, new thought, christian science, and the like, are all examples of suppressive psychotherapy. They do not deny the conflicts (even christian science calls them error or malignant animal magnetism) but they say that the thing must be forced out of existence; the patient must "forget it," (this really means, of course, that the conflicts are thrust deeper into the unconscious).

This is a fine trick if one can turn it. It is quick; it is simple; it is inexpensive. Sometimes it is effective. In the vast majority of cases it doesn't stick for the obvious reason that the conflicts, like mice, are apt to play as soon as the cat's away. Consequently unless some measure is adopted so that the patient is continuously held under the thumb of the suppression (whether it is a doctor of strong personality, a christian science reader, a hypnotist, or whatever) the symptoms often crop out again.

Sometimes, however, under suppressive treatment, an internal change takes place so that the patient is thereafter able to take care of himself. In this it is a little like poulticing a boil. As every doctor knows, this sort of home treatment many times does good. Every doctor also knows that most big boils, however, have to be lanced. In an analogous way the **expressive** method of psychotherapy aims to eradicate the conflicts, i. e., to let out the pus. The disadvantage of this is that it takes time, skill and money. The advantages are that it is permanent and that it makes the patient independent.

Expressive psychotherapy is also of two types. One is by complete re-education. This is done under various guises. Dr.

Edith Spaulding of New York, does this by taking a limited number of patients to live with her for several years. Others do it by teaching their patients something of abnormal psychology with particular reference to that patient's life with or without hospitalization. Others combine this with the psychoanalytic evidences in the case, that is they made an inductive psychoanalytic study of the patient with his aid and attempt to find from a study of the unconscious as well as the conscious factors the best way for the patient to develop himself. This is the method of Jung, and is presented in a recent book by Beatrice Hinkle, "The Recreating of the Individual." It is sometimes called psychoanalysis, but it is very different from the orthodox psychoanalysis of Freud.

An example of this type of psychotherapy concerns a woman of 40 who developed a pruritis vulvae. She had been to more than a dozen physicians and clinics but in spite of all sorts of treatments, hospitals and nurses, she had clawed herself frightfully and suffered as much as ever. In getting the history of the case I discovered evidences of certain sexual misapprehensions. The theory is somewhat too complicated to elaborate here but in general it had to do with certain doubts of and dissatisfactions with her husband which had been kept entirely secret and which she had never related to this trouble. She was distressed at his general incompetence, unproductiveness, etc., well symbolized by an actual sexual impotence which she had apparently chosen as his representative failure. We talked them over together and she got perfectly well within three days and has remained so since.

These problems are not always sexual.

Mrs. M. 28, came in, with a terrible anxiety neurosis; fearfulness, depression, tears, etc. She would walk the floor, wring her hands and cry. She was afraid of dying and of losing her mind. She said, "I know I don't have heart trouble but I feel as if I did and I can't get it off my mind, and it's this I'm afraid I'm going to die of." As I wrote the physician, "upon the delicate structure of a sensitive mind, there was made a deep, ugly scar, the reflex symptoms of which constitute her present illness." The scar was that another physician whom she had consulted in regard to palpitation told her that she had "appendicitis, gall stones, kidney trouble, stomach trouble and heart trouble;" he put her to bed and gave her much medicine. None of it availed, nor did the reassurances of several physicians called thereafter. The reason they failed was, first, that they did not make a thorough physical examination, thinking that they appreciated the situation without that, and secondly, they did not make a study of the woman's temperament and psychological reactions to the point that they could use the best technique in explaining to her the nature of her illness. She got well immediately and has been to see us many times since in the past four years simply to report that she is still well and happy.

This type of psychotherapy is available to every physician who will take the trouble to use it. It takes a good deal of time but it yields good results in many cases. One difficulty is that patients are very often reluctant to tell their home physician factors of great psychological importance in their case. Consequently he is greatly handicapped in getting at the root of the matter. Another difficulty is that the doctor is too willing to pass the matter off with a careless adjuration or exhortation. He says, "Oh, there is nothing the matter with you," or he says "Forget it." These are often helpful but they belong in the suppressive rather than in the expressive class of treatment and consequently they are rarely permanent, and moreover they often offend the patient. Or perhaps the doctor will say, "if you would quit thinking about yourself you would be all right." This is a very weak and sloppy re-education. It is exactly this transfer of interest which the patient cannot make and which she must be educated to make. This the doctor must aim to do. The fact that some ministers and teachers have done it more successfully than some physicians is not because they know more about it but because they see the necessity and make the effort.

PSYCHOANALYSIS

The second type of expressive treatment is psychoanalysis. It is by all odds the most thorough going and sure. In spite of its drawbacks there are many major neuroses which resist all other forms of psychotherapy for which it is easily the cheapest form of treatment because it brings results where everything else fails.

It is difficult to illustrate psychoanalytic therapy because it involves such longcase histories and much intimate detail; also because it entails much in the way of unfamiliar "unconscious" content which would require elaborate explanation. Technically it consists essentially in getting the patient to **express** rather than **repress** all the ideas and feelings that he has or has had in regard to certain matters, particularly his symptoms, his dreams, and other disguised manifestations of his unconscious mind.

The "complexes" or repressed ideas and wishes which cause the pain for which the symptom is a relief are of many sorts; some of the more constant ones are becoming well known by name to even the lay public; e. g., the Oedipus complex, the inferiority complex, etc. Some of these depend directly upon certain misapprehensions, particularly those of children in regard to the mechanisms of birth. The il-

lustration of this particular "complex" will give some idea of the nature of the development of a neurosis and its cure:

We were asked to see a high school girl who had developed a very puzzling stomach trouble. She had kept insisting upon attempting to have a bowel movement at frequent intervals and had other distress which had kept her in bed over a month when I first saw her. I studied her case with her for over a month and it turned out that she had the common childhood theory that conception took place in some mystical fashion, either by mouth or in some other vague way, the only definite thing about it being that it was associated with an erotic feeling. One of her schoolmates had spooned with her some time previously and she had been kissed for the first time in her life. She had been raised with great strictness, and conceived the idea that kissing was wicked because it was erotically pleasurable, and entailed the danger of impregnation. Pregnancy, she thought, took place in the stomach somewhere and delivery took place by rectum. This explains her anxiety about her bowel movements. She was perfectly well after discovering her unconscious misapprehensions and discharging the emotion stored up therewith. Consciously she was not misinformed about any of these details. Her conscious mind was sixteen years old, her unconscious ideas were those of a seven year old.

If these theories seem improbable to anyone, let him consult his own childhood memories or those of his intimate friends. (Of two people who saw this manuscript before it was published, one young woman said, with some amusement, that she had had exactly the same theories and "went through hell," and the other told of a friend who was a freshman in the State University who still had such ideas and had discussed them with her sorority sisters, including the speaker.)

Psychoanalysis has its drawbacks; it is time consuming, expensive, tedious, difficult; it can be applied to intelligent patients only (and neuroses are not limited to the intelligent and prosperous) and it requires special training. It is certainly the greatest therapeutic discovery in modern medicine, and in addition has brought much to psychology, philosophy, art and literature. It behooves the medical profession to become better acquainted with it; the antagonistic attitude of the Journal of the American Medical Association has seriously misled the general practitioners into indifference, while the lay public is increasingly interested and informed. Yet psychoanalysis is first and last a medical matter discovered and developed by medical men.

Psychoanalysis is a technical procedure, however, and it is as much a therapeutic specialty as is surgery. Consequently it should not be attempted by the general practitioner, any more than should major surgery. There is much minor psychiatry, minor psychotherapy, which the general practitioner can, should, and must do, just as he does minor surgery.

Which of the various therapeutic techniques is most applicable to a given case is often a more difficult problem than the treatment itself. Hence there are many cases which after thorough diagnostic study are best referred by the neuropsychiatrist back to the family physician for treatment which he outlines. This article has sketched a survey of the available methods.

DISCUSSION

DR. CHARLES W. THOMPSON, Pueblo, Colo. (Opening): This subject has been very admirably and thoroughly presented and the facts set forth will doubtless be helpful to us in our individual problems of adjustment.

Psychiatry has come to define its task as that of understanding and treating the disorders of human behavior. In the guiding and shaping of human nature toward a more socialized performance, or a better adaption, nothing in the native equipment can be quite eradicated. We try to redistribute and

redirect the energy and interest of the psychotic and the psychoneurotic.

In the treatment of nervous and mental disorders we are concerned with technic of human readjustment and with the positive principles of mental hygiene which may be utilized as preventives of failure in human adaption and as a means toward a more effective coercive control of the human machine.

As to the treatment of the psychoneuroses in well conducted sanatoria away from the home influences by rest, hydrotherapy and occupational therapy, I am thoroughly in accord. I enjoyed the paper very much.

DR. H. M. SMITH, Las Vegas, N. M.: Dr. Menninger has covered the subject so thoroughly that I have nothing to add except to endorse all he has said, as well as to approve the remarks of Dr. Thompson in his discussion.

DR. KARL A. MENNINGER, Topeka, Kansas. (Closing): I have nothing to say in closing, except to thank the gentlemen for the discussion and the audience for the gracious attention."

MENTAL HYGIENE—DEMENTIA PRECOX

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Dementia precox, or schizophrenia, as Bleuler has termed it, is a chronic psychosis, characterized in common by development in adolescence, emotional apathy, poverty of thought, volitional inadequacy and mental deterioration, which may be progressive or intermittent.

INCIDENCE

Dementia precox is one of the most common of the psychoses, about twenty-five per cent of all patients in institutions for the insane coming within this group. It is essentially a disease of the late adolescent period or of early adult life, sixty per cent of the cases occurring before the age of twenty-five. After the age of thirty, it is rare, although it may occur.

The disease is about equally divided between the sexes. The hebephrenic type is more common in males; the catatonic and paranoid forms, in females. Racially, the disease incidence is especially high among Jews and Italians.

ETIOLOGY

The outstanding factor in the etiology of dementia precox is hereditary transmission. Hospital statistics show that more than seventy-five per cent of all patients with this condition are the offspring of psychopathic or neuropathic stock. This taint need not necessarily be present in the direct line, i. e., the parents and grandparents, but may be found in the collateral family tree.

Various conditions of physical or emotional stress may precipitate the psychosis in one who is constitutionally predisposed. These include infections, injuries to the head, and social catastrophies. The stresses of military life are important contributory causes and many cases arose during the World War and incident to the unusual stress of the post-war period.

White considers dementia precox to be essentially a failure of psychosexual evolution whereby development is halted at the stage of puberty. He quotes the French expression that the individual with this psychosis is "stranded on the rock of puberty."

Lewis has recently emphasized the importance of certain constitutional factors in dementia precox. In a series of 601 necropsies on schizophrenic patients, he found certain tendencies to be predominant, especially small size of the heart and vascular tree. Lewis believes that the circulatory system has not only been arrested in development, but also lacks the ability to react by a satisfactory compensatory hypertrophy when occasion demands. The heart remains small throughout life.

PATHOLOGY

The essential lesion responsible for the mental changes is still unknown. Various pathologic changes have been found at necropsy, but they are inconstant. Among them are degenerative changes in the cells

of the cerebral cortex and patches of sclerosis in the frontal lobes, scattered areas of neuroglia proliferation, various atrophic changes in the thyroid, adrenal, gonadal organs, and a predisposition to pulmonary tuberculosis. The hypoplasia of the cardiovascular apparatus has already been mentioned.

SYMPTOMS

Before describing the individual forms of dementia precox, it is desirable to mention some of the symptoms common to all types. Early in the disease, the most marked changes are noted in the emotional sphere. Morbid indifference and loss of interest in one's surroundings are conspicuous. Such patients pay no attention to events which would naturally interest a normal individual. They will receive important news with the utmost *sang froid*. Even the comfort of the body and the calls of nature are unheeded. A patient may go for days without eating or moving the bowels, unless compelled to, or will lie for hours in constrained and uncomfortable positions. This complete indifference makes institutional care a matter of necessity for patients with dementia precox.

Bleuler has emphasized the importance of the symptom of *schizophrenic ambivalence*. This means that two opposite ideas or feelings may coexist. The patient may, at the same time, wish to eat and not to eat. He may both love and hate the same individual. As instances of ambivalence of feeling, Bleuler cites a case in which a woman wept with her eyes and laughed with her mouth at the same time, and another in which one side of the face expressed joy while the other simultaneously depicted sorrow.

Other general symptoms of dementia precox include a weakness of voluntary attention, an inability to grasp new ideas, and incoherent and irrelevant conversation.

True dementia, that is intellectual enfeeblement, is not observed until late in the course of the disease. In early cases, the patient is usually well oriented, that is he can tell you who he is, where he is, the date, important current events, etc. Neither is the memory seriously affected at this stage. Close questioning will usually elicit correct answers.

Remissions, during which the patient may safely be paroled, are common in dementia precox. They may last up to five years, or even longer.

TYPES

There are five forms of dementia precox, as follows:

1. Simple Type.
2. Hebephrenic Type.

3. Catatonic Type.

4. Paranoid Type.

5. Mixed Type.

The **simple type** is very gradual in its onset. The patient begins to lose interest in his work, neglects his duties, becomes eccentric and fails to observe the usual courtesies. He soon finds that he is unable to get along with his associates. He is subject to hysterical outbursts and fits of depression. There may be delusions and hallucinations. Many hoboes and prostitutes really belong to this type of disease.

The **hebephrenic type** of dementia precox is the most common, comprising sixty per cent of all cases. This is the usual form in males. The onset is more sudden than in the simple type. The patient becomes depressed, restless, confused and incoherent. He may hear voices calling him foul names and accusing him of masturbation and other sexual vices. Delusions, when present, are usually transient and of a silly nature, such as the belief that one is an ash-can or that he has no arms or legs. The patient does not support these absurdities with arguments but merely states them as facts. Emotional deterioration is extreme in this type. The news of the death of a near relative, for instance, is received with the utmost unconcern.

Mental delapidation in this form of the disease becomes extreme. The patient becomes careless in his dress and indecent in his manner. Social conventions are completely ignored. Finally, life becomes nothing more than a vegetative existence, and the patient goes around muttering unintelligibly, making silly grimaces and performing all sorts of meaningless acts.

The **catatonic type** comprises about twenty per cent of cases. The cardinal features of this form are alternating phases of stupor and excitement, automatic behavior or the reverse condition of negativism, and stereotyped attitudes and mannerisms. The patient may lie for days at a time in extreme stupor, paying no attention to anything in his environment. He will not eat, nor will he heed the calls of nature. Enforced feeding and attention to the bladder and bowels therefore become necessary. This patient suddenly becomes feverishly active, throws the furniture around and attacks persons about him, and he may attempt self-destruction.

Automatic behavior, that is copying acts, gestures and phrases and repeating them over and over again, is common. Suggestibility may be extreme, so that if the examiner places the patient's limbs in all sorts of bizarre positions they will remain there. This symptom is known as *cataplexy*. On

the contrary, the subject may resist all suggestion, refusing to talk, move, eat, etc. This latter condition is known as **negativism**.

The **paranoid type** is so called because of its superficial resemblance to paranoia. True paranoia is a psychosis which is characterized by a highly organized system of delusions of persecution. In the paranoid type of dementia precox, persecutory delusions are present and they are more or less interwoven, but they never attain the convincing character and complexity typical of true paranoia. A little questioning of the patient will soon disclose the intrinsic absurdity of the delusions and the poverty of attendant circumstances. For example, a woman persistently believed that her child was to be electrocuted by the police during the following week, but she could offer no explanation other than that it was done because she was an Italian.

The **mixed types** of dementia precox present various combinations of the four forms just described.

PROGNOSIS

The outlook is poor, as the usual outcome is a terminal dementia. However, the popular belief that the diagnosis of dementia precox means that there is no hope is inaccurate. Only when there is actual intellectual enfeeblement can a case be regarded as hopeless.

As has been stated before, remissions lasting for several years or more, during which the patient may lead a normal existence, are common. Furthermore, a small but definite percentage of patients with dementia precox make social recoveries; that is, while abnormal from the psychiatric standpoint, they are sufficiently able to adjust themselves to their environment so as to live in harmony with the community.

The prognosis is poorest in the simple and hebephrenic types, wherein mental deterioration appears early and progresses rapidly. In the catatonic form, on the other hand, Kraepelin has observed twenty per cent of social recoveries, and his experience has largely been confirmed by other workers. The outlook in the paranoid type is not so good as in the catatonic form but distinctly better than in the simple and hebephrenic types.

In general, the prognosis is better when the family history is good, when the disease appears relatively late in life, when its onset is sudden, and when it occurs following some severe emotional stress, as a military campaign or the death of a near relative.

IMPORTANCE OF EARLY RECOGNITION

The constant danger of injury to others

or one's self, even of homicide or suicide, and the likelihood of immediate social entanglements in a case of dementia precox, make early recognition and admission to an institution a matter of great importance. Many of these patients are not recognized as abnormal until they have become involved in some serious difficulty.

The schizophrenic patient with any social tendencies should be hospitalized early to avoid social difficulties. A careful psychiatric examination should be made of all eccentric individuals manifesting conduct disorders, that dementia precox may be early recognized. The entanglements into which these patients inevitably get themselves greatly increase the stresses of their existence and thus aggravate the disease. The quiet, well-ordered routine of sanitarium life, providing scientific treatment for all physical ills, coupled with diversional and occupational therapy, is the most favorable environment for recovery. Early recognition of the disease and admission to an institution where the patient may be protected from the rigors of the outside world greatly improve the chances for adjustment and social recovery.

SUMMARY

Certain salient features with reference to dementia precox will be repeated for emphasis:

1. Dementia precox is a very common psychosis, comprising about twenty-five per cent of all admissions to institutions for the insane. The majority of cases occur before the age of twenty-five.

2. Heredity is the most important factor in the etiology. About seventy-five per cent of all patients come from psychopathic or neuropathic stock.

3. Emotional indifference, that is loss of interest in one's surroundings and unconcern as to important matters, is an early and pronounced feature of the psychosis.

4. True dementia, that is enfeeblement of the intellect, loss of memory and disorientation, does not occur until late in the disease.

5. There are five types of dementia precox, namely, (a) simple, b) hebephrenic, (c) catatonic, (d) paranoid and (e) mixed.

6. The prognosis is poor, but a definite percentage of patients make social recoveries. The outlook is best in the catatonic type, poorest in the simple and hebephrenic forms.

7. Early recognition and hospitalization are imperative in order to avoid serious accidents or entanglements. Furthermore, the sooner the patient is placed in custody and under the proper care the better his chances of social recovery.

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DISCUSSION

DR. H. M. SMITH, Las Vegas, N. M. (Opening): The doctor mentions the inconstant findings post-mortem. While it has not been generally accepted, a number of observers speak of the atrophy of the essential structures of the testes and ovaries in these cases. Gibbs of Ward's Island reports as follows: "The findings obtained in a study of 325 male dementia precox patients indicate a disturbance of sexual maturity which is most marked in patients admitted to the hospital during years of puberty and adolescence. Patients admitted at an early age the impression of unevenness of sexual growth, the development of the secondary sexual characters lagging behind that of the testes. These patients seem to lack the finishing touches of complete physical maturity. Only 20.5 per cent of the patients had reached an adult level of sexual behavior and maintained it for even a short period, either single or married."

Also, under the head of etiology, he speaks of some of the internal glands as being casual factors.

For those of you interested in edocrinology, allow me to quote from Bandler, of New York. Speaking of the disturbances of menstruation in young girls, he says: "What do these neurotic symptoms at this stage of development mean to us? They mean that hundreds of girls have, from fifteen to nineteen years of age, various forms of physical and psychic phenomena which, though they smooth themselves out in the vast majority of cases and eventually allow the possessors to become normal, suggest at the time minor forms of those psychoses which are not so rare during the development age. Dementia precox, as you know, is a condition affecting the growing boy or girl at the developmental age. What can be made responsible for this condition except an interglandular upset? What makes such a girl or boy develop in a fairly normal way up to a certain stage and then show abnormality? These various points are suggestions, but they mean that every boy or girl is a potential dementia precox. Practically every person is a potential manic-depressive. We all have our periods of elation and depression, with cause and without cause, but our endocrine

relationship preserves a tolerable balance; but if this endocrine upset is pronounced and manifests its activity mainly on the nervous system, you may have a developmental psychosis. This can be explained on no other basis than endocrine upset."

It is not to be concluded that dementia precox is caused alone by changes in the testes or ovaries, but that there is a close association of the disease with changes in these and other organs of the endocrine system suggests at least a relationship that time may bring to a better understanding.

I quite agree with the doctor in his recommendation of early institutional care. However in a suspected but not proven case, a border line case so to speak, a change of environment,—and their home life is usually bad,—might first be tried. The wayward, the truant, the runaway, the petty thief and others are potential cases and much might be done in a preventative way could their mode of life be changed. The cultivation of sociability is of great importance for they are essentially unsociable.

A little care and study of cases that in their adolescent period seem to have a change of character or who become outcasts or seem unable to adapt themselves to their surroundings might prevent or at least retard the development of this serious and to the public costly disease, for once fully developed there seems little hope. And, then, too, many cases early show dangerous antisocial tendencies, and murders and other serious crimes are committed by them, the true nature of the disease not manifesting itself until this stress of arrest, trial and punishment breaks down their enfeebled resistance.

DR. KARL A. MENNINGER, Topeka, Kansas: I would like to say a word about this paper, which is a very timely one. I have already so expressed myself on the subject, as some of the doctors here may recall from last year, when I presented my paper upon "Nervous Diseases and the General Practitioner."

Mental disease is one of the most important branches of medicine. Many people do not realize that there are more cases of mental and nervous diseases in the hospitals today than there are tuberculosis and all other diseases put together. The number of mental cases hospitalized is enormous. Statisticians have shown that in the course of a whole life time, something like one out of every ten persons are afflicted with nervous or mental trouble sufficiently grave for hospitalization. When we think that one-tenth of the population of the United States is going to develop mental trouble, we must realize that there is justification for a mental health program.

We have spent lots of money and lots of time on other branches of health work, yet we have almost entirely neglected mental health measures. Why should we not be as concerned in keeping the mind healthy as we are about the body, or about the food for our stomachs, the climate for our lungs, etc.?

I thought the doctor read a very fine paper. I think that we should make clear the whole problem of mental hygiene as he has made clear the one subject dementia precox. That is not the only phase we are concerned about, though it is very important because it is one of the most abundant and most serious forms.

DR. CHARLES W. THOMPSON, Pueblo, Colo. (closing): I have nothing to add except to thank the gentlemen for their discussion and for the points brought out. Of course, the broad subject of mental hygiene is too comprehensive to cover in one talk or even a series of talks, but I wanted to emphasize in my paper the most prevalent type of mental disease and tried to do this.

OPERATIVE AND POSTOPERATIVE COMPLICATIONS OF SUBTOTAL THYROIDECTOMY.

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Accurate and detailed knowledge of the origin and nature of the operative and post-operative dangers incident to intraglandular enucleation and to subtotal thyroidectomy acts as an incentive to early, to more timely operations and to the institution of surgical relief previous to the advent of local complications, previous to the development of degenerative visceral changes. Timely operations skillfully performed will lessen the frequency and the morbidity of the accidents herein considered, will reduce the operative mortality and improve the end-results.

These surgical complications, avoidable or unavoidable, of minor or major importance, are due, in part, to the patient's unfavorable physical condition at the time of the operation, to the use of a method of anesthesia not adapted to the case at hand, to lack of proper correlation of the anesthetic to the technic, to the operator's lack of technical skill, experience and judgment in surgery of the neck, etc. Owing to the study given to diseases of the thyroid in recent years, these accidents are now better recognized, better understood and better managed.

HEMORRHAGE

It may be of arterial, venous, capillary or mixed origin. Serious hemorrhage may occur at the time of operation, immediately after the patient has been conveyed to bed or during the postoperative period.

At the time of operation, some hemorrhage is unavoidable. Profuse hemorrhage must be guarded against; it is alarming and, if not controlled, may prove fatal. The vessels of a goitrous thyroid gland show a marked tendency to degeneration. They are dilated, their elasticity is impaired, they tear easily. In some cases the cervical veins, especially those located at the lower part of neck, are dilated tremendously. The arteries show a thickening of the intima and degeneration of the elastic fibrillae. Care must be taken not to injure the internal jugular veins or the carotid arteries. During the operation, owing to the lowered blood pressure, small arterioles and venules may not bleed and thereby escape ligation or suturing. With the return of consciousness, the blood pressure rises and hemorrhage may occur. Immobilization of the operative region not being feasible for the first two days fol-

lowing the operation, the patient is to be closely watched, as violent coughing, violent retching, vomiting, too frequent change of position, undue activity can bring on abnormal intravenous pressure followed by hemorrhage.

Secondary hemorrhage following thyroidectomy may be sufficiently serious to cause death. Chief among its causes are premature absorption, slipping or unknotting of unsecurely tied ligatures, erosion of vessel walls, errors of technic such as faulty asepsis, overlooking of bleeding points at time of operation, delayed removal of drains, etc.

Hemorrhage manifests itself by pallor, rapid and superficial breathing, rapid and weak pulse; the dressings may be saturated with blood. If the hemorrhage be not checked, it leads to obstructive dyspnea, to asphyxia; it may result in collapse. The loss of blood in itself is a danger. Furthermore, the extravasated blood may exert dangerous compression on the trachea thereby giving rise to serious respiratory disturbances.

In cases of secondary hemorrhage, reopen the wound widely and carefully and rapidly remove all the blood clots. Locate the bleeding points and ligate the bleeding vessels at their divided ends; reunite the wound edges and apply appropriate dressings. After the hemorrhage has been controlled, if the pulse be alarmingly weak, give normal salt solution subcutaneously and rectally and also such medicinal agents as are indicated.

RECURRENT LARYNGEAL NERVE INJURIES

The recurrent laryngeal nerves are more commonly injured than is believed. In operations on goiters, the branches or trunk of one or of both nerves may be clamped, compressed, contused, stretched, lacerated, torn, included in a ligature or divided. Postoperative paralysis of these nerves are occasionally due to their inclusion in scar tissue, to their compression by inflammatory exudates or to the retraction of cicatricial tissue. The pareses or paralysis caused by injuries of the superior laryngeal nerve are not so manifest, not so significant as those due to recurrent nerve injuries and will receive here no further mention. An injury of the recurrent laryngeal nerve may be symptomless, may escape detection. It may first be detected by mir-

ror examination of the larynx and may have only slight appreciable effect: a change in the pitch of the voice, more or less permanent hoarseness, slight difficulty in breathing, etc. When a unilateral nerve injury is not compensated by the uninjured vocal cord, aphonia, obstructive dyspnea and other symptoms result. Normal voice is restored through compensatory efforts of the normal cord.

Vocal cord paralyzes of operative origin result from stretching, clamping, tying or division of recurrent laryngeal nerve or nerves. Traumatic injuries unassociated with complete nerve division produce symptoms of a temporary character, symptoms which in time disappear. Injuries involving both recurrent nerves constitute a serious complication. If both cords assume the cadaveric position, there follows a permanent aphonia and later an obstructive dyspnea which, if unrelieved, may be a contributing or decisive factor in the patient's death. Complete division of both nerves has resulted in death from deglutition pneumonia.

Preoperative mirror examination of the larynx gives the examiner exact and positive information concerning the state of the vocal cords; it is a protection to the physician and to the patient.

The recurrent laryngeal nerves are found posterior to the capsule of the thyroid gland, along the side of the trachea and in the groove between it and the esophagus. By scrupulously respecting the posterior capsule with which the nerves are intimately associated, the recurrent laryngeal nerves, always, and the parathyroid glands, almost always, will remain uninjured. The recurrent laryngeal nerves and the parathyroid gland are most surely avoided by leaving the region they traverse entirely unmolested by not removing the posterior mesial lower part of each lobe of the thyroid gland. Gentleness in the use of hemostatic forceps, in the insertion of sutures and in the handling of tissues tends to lessen the incidence of nerve injury. Rough attempts to shell out, to drag out a deep-seated goitrous gland may so stretch the recurrent laryngeal nerves as to cause paralysis of both vocal cords. The nerves may be pinched by a hemostat with other tissue or may be included in a ligature. Some operators, in resecting the lobes of the thyroid gland, proceed from within out. At the time of the patient's discharge from the hospital, re-examine the larynx and determine the presence or absence of any incompetency of the vocal cords. After subtotal thyroidectomy, loss of voice of vary-

ing degrees and more or less temporary in nature is not of uncommon occurrence.

POSTOPERATIVE TETANY

The parathyroid glands, four in number, two on each side, are, as a rule, located posterior to the capsule of the thyroid gland and lateral to the esophagus. These glands, inconstant in number, irregular in location, have a function which appears distinct and separate from that of the thyroid gland. Their physiological importance is out of proportion to their small size. The anatomical integrity of these glands is of essential importance to the human organism.

The prophylaxis of postoperative tetany presents difficulties due chiefly to the irregularity in number and location of the parathyroid glands. Postoperative tetany is infrequent. It can be caused by any interference with the blood or nerve supply of the parathyroid glands. The parathyroid glandules, after interference with their blood supply, do not resume their function and the manifestations of tetany do not come to an end before the collateral circulation is reestablished.

Injury and removal of the parathyroids can almost always be avoided by leaving a layer of glandular and capsular tissue undisturbed at the back of the thyroid gland. This same protects the recurrent laryngeal nerves.

The deficiency of one or two parathyroids may not cause hypoparathyroidism. Nevertheless, if a parathyroid gland be accidentally removed, it should be transplanted at the close of the operation, preferably beneath the remaining thyroid lobe. Be sure of the nature and state of the transplant. We advise this because the actual condition of the individual glands is not known, as they are often rendered useless by hemorrhage or degenerative changes.

As the operation is nowadays usually bilateral and less radical, injury to the parathyroids is of very infrequent occurrence. Parathyroid insufficiency may appear any time from six hours to three or four months after operation. It almost always manifests itself by circumoral pallor, by a tight glossy appearance of the skin of the forehead, nose and face, by a sensation of stiffness in the fingers, by carpopedal spasms, etc. It is difficult for the patient to raise his fingers to his mouth or to hold anything. The lowered calcium content of blood serum or plasma cause exaggerated nervous irritability. These symptoms pass off in a few hours or a day, possibly after one or two doses of morphine or the condition gradually progresses until the contrac-

tions involve the muscles of the hands and arms; sometimes the contractions become general.

Postoperative tetany is treated as follows:

(a) By restoring the calcium content of the blood serum to within normal limits. This is effected by administering calcium lactate, gr. xx every four hours until relief is obtained. It is to be given orally, by enema subcutaneously, and exceptionally, intravenously and in larger doses, if necessary. The calcium lactate should be given in water and continued as long as the patient shows symptoms of nervous irritability such as Chvostek's and Trousseau's signs.

(b) By transplanting human parathyroids. The parathyroids used are obtained from fatal accident cases and from normal infants who have died during delivery. These transplants are difficult to obtain, are readily absorbed and of service to the organism while the remaining parathyroids undergo compensatory hypertrophy or the injured or diseased ones recover. Transplantation may be made in the left abdominal wall between the peritoneum and the rectus muscle. Should the patient later submit to an operation for appendicitis, the transplants will not be disturbed. Some operators embed the grafts in the supraclavicular fossa beneath the cervical fascia. The microscope enables one to determine whether or not the transplant is unquestionably parathyroid tissue.

(c) By the various parathyroid serums in the market.

(d) By the ingestion, orally, of parathyroid products.

(e) By medicinal therapy, largely symptomatic in nature.

Chloral hydrate per mouth or per rectum, repeated as needed; morphine sulphate; magnesium sulphate in 25% solution subcutaneously. Have patient drink plenty of milk and avoid all kinds of meat.

AIR EMBOLISM

It is a possible, though a very uncommon complication of operations about the neck. Many active surgeons possess only a theoretical knowledge of the condition. Among its predisposing etiological factors should be mentioned: The restlessness of patients operated upon under local anesthesia, great loss of blood and wounds of valveless dilated veins. From the prognostic standpoint, owing to its rarity, it is almost negligible.

If during inspiration air is sucked into a wounded vein and carried to the right heart, there is usually produced a peculiar whirring or churning sound synchronous with the cardiac systole. The danger of

this complication is in direct ratio to the air aspirated and to the rapidity with which it enters the veins. If dangerous symptoms or death do not immediately follow the occurrence of air embolism, the accident need not cause the surgeon any further worry. A few cases of temporary paralysis due to air embolism are recorded in the literature.

Treatment: Prophylaxis is the watchword. To lessen its incidence, keep in mind its possibility, minimize hemorrhage, avoid rough handling of tissue, keep patient in the horizontal recumbent position during the entire operation (the sitting posture favors the development of air embolism) and doubly ligate large veins before dividing them.

As soon as this accident occurs, to prevent further aspiration of air, elevate the foot of the table, tampon and flush the wound with normal salt solution. While the tampon is being cautiously removed, clamp the wounded vein or veins and ligate them. Artificial respiration may lead to more air aspiration and therefore is not to be practiced.

TRACHEAL COLLAPSE

Long continued, unilateral or bilateral, pressure of voluminous goiters can determine either a loss of elasticity, a softening, an atrophy or an almost complete disappearance of the cartilaginous tracheal rings. In these cases, the trachea, after losing the support afforded by its attachment to the thyroid gland, sometimes persists in kinking and in collapsing at the close of the operation. There is no danger of tracheal collapse if the tracheal rings are normal. Many factors enter into the causation of tracheal flattening and collapse: The patient's age, the goiter's histological structure and consistency and, especially, the long continued traction or pressure exerted by the goiter as in the scabbard trachea.

Collapse of the trachea causes obstructive dyspnea, amounting in some cases to asphyxia. With increased violence of the inspiratory efforts, there results a more complete mechanical obstruction to respiration.

Tracheal collapse may be fatal; in extreme cases it may necessitate a tracheotomy. It may take days, even weeks, for trachea to recover its efficiency. In about six months, complete recovery usually takes place.

Treatment: By means of a sharp tenaculum inserted on each side of its collapsed portion, the trachea is drawn forward. Should it persist or show signs of recurring collapse, fasten, by a few catgut

sutures (stay sutures) the sides of the trachea to the surrounding tissue or fix the resected goiter stumps to the under surface of the sterno-cleido-mastoid or omo-hyoid muscles, and thus secure the tracheal dilatation and prevent recurrence of the collapse. Avoid perforating, by needle or tenacula, the cartilaginous rings or the entire thickness of the tracheal wall and thereby eliminate such complications as necrosis of tracheal rings, wound infection, etc. Tracheotomy is rarely indicated.

RECURRENCE OF GOITER

Recurrence of goiter and recurrence of symptoms are noted in a small and decreasing percentage of cases. The portion left, the opposite lobe or the isthmus may hypertrophy. It is most frequent within the first five years after operation. Recurrence causes symptoms chiefly when bilateral. Some recurrences cause only cosmetic defects. After enucleation, cysts or adenomata of new formation have been observed.

If the operators underestimate the amount of gland tissue to be removed, if the blood supply of the tissue left is not sufficiently shut off, if the primary cause of the goiter persists, if focal infections are left untreated, recurrence is more probable. Recurrences become fewer as the surgeon's experience increases.

In general, the amount of tissue to be left should be the functional equivalent of a normal gland. In postoperative prophylactic treatment, the use of boiled drinking water, orange juice, the suppression of all foci of infection (teeth, tonsils and others), etc., is very important. I follow the practice of Crile who believes that by giving minute doses of iodine for not less than one year after thyroidectomy, recurrences are prevented. In this connection, keep in mind that some patients are iodine-refractory and others are iodine-susceptible. Operation on a recurrent goiter is more dangerous than the primary operation on account of the necessity of preserving an adequate amount of gland tissue and of the presence of cicatricial adhesions.

POSTOPERATIVE HYPERTHYROIDISM

Owing to the present-day combined medical and surgical treatment of goiter cases, postoperative hyperthyroidism is infrequent. According to the latest researches, it follows the entrance of glandular elements and ferments squeezed out of the gland into the circulation. The absorption of thyroid secretion, during the operation and afterwards, also takes place through the wound surface. The patients are seized by a psychic storm usually of an agitated

maniacal type, there is restlessness, accelerated pulse-rate reaching 150 to 160 per minute, elevation of temperature (105° - 106° F.), disturbed cardiac action, etc.

The frequency and severity of postoperative hyperthyroidism are lessened by observance of the following precepts: Operate as rapidly as consistent with the patient's safety and the completeness of the operation, secure perfect hemostasis, avoid squeezing of the gland and all needless traumatizing of tissue, make ample provision for drainage and see that oozing blood and effused thyroid secretion escape easily and do not remain in contact with the wound surface.

Drainage relieves tracheal compression due to postoperative hemorrhage and prevents hematoma formation. After all goiter operations, give large quantities of normal salt solution subcutaneously and rectally. By this practice the absorption of thyroid secretion is lessened and general elimination is increased. For the high temperature, the cold pack is most serviceable.

POSTOPERATIVE MYXEDEMA

Total thyroidectomy, having been frequently followed by myxedema is now no longer performed. In goiter operations, hypothyroidism will not result if a small piece of thyroid tissue with adequate blood and nerve supply is left. If we leave a quantity equal to about one-fourth of the healthy gland, symptoms of thyroid deficiency will not develop. In the individual case, the quantity of gland tissue to be saved is to be left to the surgeon's judgment. He alone has a thorough knowledge of the patient's condition. This is essential to determine when and what to do rather than where and how to do it. Some operators leave small masses at each horn of the organ and, in addition, a thin layer of thyroid tissue attached to the posterior untouched part of the gland capsule. These masses are well supplied with blood and lymphatic vessels and can, if needed, undergo compensatory hypertrophy.

In postoperative myxedema, there is impaired memory and intelligence, there is apathy, somnolence, great disinclination to effort. An edematous swelling of the skin develops and the patients complain of feeling cold. In young individuals, the growth is stunted. Hypothyroidism is characterized by a definite reduction in the basal metabolism; the metabolic rate is always lower than that of normal individuals of the same age and sex.

The successful management of these cases is one of the noteworthy triumphs of organotherapy. Institute treatment at

te first appearance of symptoms. Make up the deficit of thyroid secretion by thyroid treatment. In directing and guiding thyroid administration, metabolic rate determinations are of the greatest importance. Bring the patient's metabolism to normal and ascertain the dose necessary to keep it there. The patient is to be given iodothyron or another suitable preparation of thyroid gland or may be fed thyroid gland substance. The active principle of the thyroid gland, thyroxin, may be given intravenously. Thyroid gland tissue has been implanted. The treatment by organotherapy is to be continued for weeks, for months and thereafter is continued intermittently for some time; it may have to be continued for many years. In course of time, the symptoms of thyroid deficiency usually subside and may permanently disappear.

POSTOPERATIVE INFECTIONS

Despite careful asepsis and perfect hemostasis, every now and then postoperative infections occur. They usually come from without, exceptionally, from within. In their causation, local tissue resistance and the individual's general resistance are not negligible factors. In the space remaining after removal of the goiter, blood and wound secretion easily pool and are prone to infection.

The indication is self-evident. Let your technic be flawless. Do not wound the trachea or the esophagus; these wounds are often followed by infection of neighboring regions. Should the esophagus be accidentally wounded, immediate exact apposition and suture of the wound edges is indicated. After all goiter operations, drain for about forty-eight hours, thereby preventing the symptoms and sequelae due to retained thyroid secretion and extravasated blood. The treatment of postoperative infections occurring in this region is that of infections in general.

POSTOPERATIVE PNEUMONIA

Owing to its unfavorable prognosis, it always gives the clinician the greatest concern. The pain in the wound hinders expectoration and lung aeration. The pneumonia may be endemic or epidemic in nature, may be postanesthetic, may follow the aspiration of mucus, blood or stomach contents, may follow exposure to cold during or after operation, may be due to infective emboli, etc., but most often, almost always, is primarily due to an injury of the recurrent laryngeal nerve or nerves. In the etiology of pulmonary complications, injury of the recurrent laryngeal nerve or nerves is the paramount factor. In old individuals, this condition is frequently hypostatic in type and fatal in outcome. The abandonment of prolonged anesthesia, the avoidance of unnecessary exposure, denudation and rotation of the trachea and especially care not to injure the recurrent laryngeal nerves, have practically eliminated postoperative pneumonia as a danger in goiter operations. If by accident the trachea be opened, guard against the aspiration of blood. Should the latter occur, lung abscess or deglutition pneumonia may follow. The treatment of postoperative pneumonia is, as yet, purely symptomatic.

DISTURBED DEGLUTITION

In dislocating large goiters, the nerves supplying the pharyngeal muscles may be traumatized. Dysphagia of several days duration always follows goiter operations; it is usually manifested by pain on swallowing. Sometimes after operation, patient chokes when trying to swallow fluids. The liquid flows back into the nose or drops into the larynx and trachea. Combat this by turning patient on his face with his head over the edge of the bed; place the glass on the floor or on a low stand and let him drink through a tube uphill. All nourishment will have to be given in this manner until normal control of the pharynx is regained.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE MIDDLE EAR.

HARLEY YANDELL, M. D.
PHOENIX, ARIZONA

In undertaking to learn something about a tuberculous ear, I realize that I am taking an "alien tangent," a road seldom traveled. How often have we "peered" through the aural speculum into a field of "stinking" pus and said to ourselves, "a case of

chronic pustular otitis media," and let it go at that.

Often have I encountered a chronic pustular discharging ear in a patient who has gone from physician to physician and was just about ready to wind up the attempt at

treatment by the various methods recommended, merely endeavoring to carry out some home treatment, confirmed in his belief that the discharging ear is to be his lot until he has crossed the bar.

Thus these present, universally failing, and absolutely unsatisfactory, methods of treatment of these pustular ears has lead me to put a little extra effort in this work; so I have been traveling for quite some time on a road that is rather lonesome, a sort of forsaken lane, with here and there an occasional land mark and guide left by just a few men several years ago.

A few words about the disease itself. In almost every case tuberculosis of the ear is secondary to an infection elsewhere in the body; however there have been a few cases reported in patients in whom tuberculosis has not been absolutely diagnosed by any methods. In all probability it will require hundreds of cases, reaching through a long career of practice, before we will ever find the tubercle bacilli on the smear from the pus of a supposedly tuberculous ear. While I was in the government service in 1916 I inoculated ten guinea pigs with pus from ears of Indians who had tuberculosis of the lungs, and I was able to make a positive diagnosis in each case, although unable to isolate the bacilli on the smear from the pus. This experiment, together with others since that time, has lead me to believe strongly that the only definite method of diagnosis of tuberculosis of the ear is by guinea pig inoculation.

In most cases the onset and progress of the disease are alike gradual and insidious, without pain or discomfort apart from the discharge. The discharge is most often thin and curdy, but there may be genuine pus as the raw ulcerating surfaces readily and soon undergo secondary infection. This is an important point, for we seldom get hold of a tuberculous ear in its initial stages, but they come to us after a mixed infection has set in.

Most all text books tell us that the membrane is pale and has multiple perforations. This is true of the very early cases. On the other hand the picture we most often see is the canal more or less filled with a foul smelling pus, ropy, barley gruel like in color. After the pus is wiped away we may find remnants of the membrane remaining with granulations in the middle ear very prominent, or we may find multiple perforations which gradually coalesce as we watch them from day to day and week to week, finally eroding the entire membrane. It is a noticeable fact that

by the time the membrane has been eroded and gone, the malleus and incus are also eroded and practically all gone.

After we have made the diagnosis, which has been by a rather difficult and tedious method, probably has taken from three to eight weeks to be sure, what are we going to do with these patients?

First, the general care and treatment as with lung tuberculosis is essential and should be carried out as much as possible. However, often we have these tuberculous ears in patients who are able to be up and around and it is in such cases that I have been most interested and in whom I have carried out most of my work which covers a period of eleven years. In almost every case I have been led to believe that I have gotten fair results from the administration of infinitesimal doses of old tuberculin-.05 c.c. of 1/1000 mg. given once each week.

Fifteen M. of hypodermic double strength echinacea at least three times a week or oftener is splendid in these cases of pustular ears.

Harrower's Adreno-spermin Co. is almost a routine and I feel quite sure that it is always worth while.

This constitutes the bulk of my general medicinal treatment of these cases, and now we will proceed to the local treatment which I think must be followed out very much in detail and very skillfully. This certainly requires patience on the part of the physician as well as the patient himself. The ear is first cleansed by wiping dry (and never by irrigation) as nearly as possible. This may sometimes require several minutes, but it is important. The ear is then inflated by the Politzer method, and is again wiped dry. This is followed by exposing the interior of the ear to the intensified white quartz Kromayer, using the pharyngeal applicator passed through a large size aural speculum held in position from ten to fifteen minutes three or four times a week. Then the canal is filled with pure ether which is allowed to remain until mostly evaporated, which usually requires about ten to fifteen minutes. This cleanses and of course partially antisepticizes the middle ear, which is now ready for the instillation of 2% mercurochrome which remains in the ear for ten to fifteen minutes.

This treatment is kept up for at least six weeks or two months if necessary, and then what are we going to do if the pus still runs and the patient is not well?

Patients who are ambulatory, in fair general condition, and whose ears have resisted this treatment for this length of

time, and who are as a rule most nearly deaf, should be given at least one more chance; viz, the benefits derived from either a simple or a radical mastoid operation, whichever is required, in spite of the fact that they may be slow in healing. This treatment will apply to any chronic pustular ear.

DISCUSSION

DR. J. J. McLOONE:—We do not see much about tuberculosis of the middle ear in American literature, and think that it is due to the better methods of treatment of general tuberculosis in this country. Tubercle bacilli are not usually found in the discharges from the ears; we worked this out some years ago with Mr. Boynton of the Laboratory. The chief point in diagnosis is that these patients suddenly become deaf and I believe

this is a toxemia of the eighth nerve. If the ears undergo a painless rupture of the drum and suddenly become deaf, in a tuberculous patient, that is almost certainly a tuberculous ear.

DR. VICTOR RANDOLPH:—How would you treat an early case of tuberculosis of the ear? Have seen some cases with early symptoms, cracking in the ear, with redness of the drum, but not yet ruptured. Saw some cases in the San Francisco County Hospital where the tubercle bacilli were so numerous in the discharges that they showed as visible red spots on the smears; believe in a large series of advanced cases, many of them would show bacilli.

DR. YANDELL (closing):—I hope this discussion will lead to greater interest in treating these cases. I rarely see an early case, but think the treatment should be the same as that outlined, cleanliness, Kromayer lamp, possibly mercurochrome.

SYPHILITIC INTERSTITIAL KERATITIS

DR. RAFAEL A. HERNANDEZ
TUCSON, ARIZONA

I do not know whether acquired syphilis of the eye can be differentiated from congenital infection in children if there is not present the so-called: "Hutchinson Syndrome."

Loyd Thompson says that the bilateral affection is congenital and that the unilateral is the acquired form.

CASE REPORT

A girl, 12 years old, with chronic unilateral interstitial keratitis. Her mother gave a negative history and said that her daughter was using all kinds of patent medicines and collyria without any good result. The girl claimed that her disease was an infection from a towel she used in a boarding school, because, since she used that towel she felt itching in the eye, which trouble was increasing every day.

The Wassermann test was negative, but as sometimes for unknown reasons in certain syphilitic infections the Wassermann is negative, and hoping to modify the condition of the patient, the following mixed treatment was given:

Oral administration of Gibert syrup in doses of a teaspoonful three times a day. This dose contains half centigram of mercury and twenty-five centigrams of potassium iodide.

Intravenously, an injection of sodium cacodylate 15 gr. in 2 c. c. twice a week; and locally, eye-wash with 3% solution of boric acid every morning following by small amount of yellow oxide of mercury ointment. Two weeks after she had mercurial stomatitis and the treatment was discontinued for about fifteen days. Then she had an intravenous injection of mercury iodide, 0.0055 gm. and sodium cacodylate 2 gm. every week. The eye cleared up in about sixty days and the patient left the city and was attending the school for some time thereafter until she felt in the other eye the same symptoms that she had before.

A new Wassermann test made and was three plus positive. Since, she is under the following specific treatment: Every ten days 10 c. c. intravenously injection of Arseno-Mer-Sodine, which formula is:

Sodium Dimethylarsenate	1.45
Mercury Oxycyanide008

Sodium Iodide	1.0
Distilled water	20. c. c.

Intramuscular injection of the French preparation called "RUBYL" that is double iodide of quinine and bismuth, every ten days also, but alternatively, so that she has an injection every five days. She is improving very much.

Whether or not this case is congenital or acquired is a very difficult conclusion, but anyhow I believe that one of the best prophylactic measures to avoid the increase of syphilis among the students is to oblige by law that every student, before being accepted in a private or public school, shall have a negative blood specimen test, just as they are obliged by law to have the vaccination against smallpox; also, to keep the personal use of things, to give special training and make the students understand how dangerous syphilis is, as they know the danger of smallpox, because the syphilitic child must be considered as a tremendous menace to the health of the other children.

IS CARCINOMA AN INFECTION:—The argument for the parasitic origin of malignant epithelial growths is being advocated rather strongly by a number of authorities and a recent paper by Scott reviews the subject in a very convincing manner. It behooves the medical profession to keep an open mind on this subject and weigh the evidence impartially. Scott warns us that history threatens to repeat itself in this connection as it did when acknowledged leaders rejected Harvey's demonstration that blood is not circulated through the arteries; or when a committee reported on the work of Jenner to the effect that no benefit was to be derived from it; or when the Holmes' teachings about puerperal sepsis was rejected by the eminent obstetricians of his day. Pasteur, Koch, Lister and Doyen all had their teachings scouted by the doubters of their day.

Scott, Northwest Med., Oct. 1925.

WHAT AN EMINENT PHYSICIAN SAYS

about Gelatine in Milk for Infant Feeding

DR. JOSEPH LEIDY, of Philadelphia says: "The combination of Gelatine and milk in infant feeding was long used by my father and the late Dr. W. Pepper. I have continued to use it during the past thirty years, and am of the opinion that it gives results when many other combinations fail." (Quoted by permission.)

Thomas B. Downey, Ph. D., Fellow of Mellon Institute, Pittsburgh, has, by standard feeding test, determined that the addition of pure, plain unflavored Gelatine increases the nourishment obtainable from the milk by about 23%.

The approved method of combining Gelatine with milk is as follows:

Soak, for ten minutes, one level tablespoonful of pure, unflavored, unsweetened Gelatine in one-half cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until Gelatine is fully dissolved; add this dissolved Gelatine to the quart of cold milk or regular formula.

Physicians are cautioned to prescribe only pure, unflavored and unsweetened Gelatine—the purest form of which is **Knox Sparkling Gelatine**—highest quality for health—produced by the most scientific methods, and under constant bacteriological and chemical laboratory control. It contains no artificial flavoring—no sweetening.

FREE—To Physicians and Hospitals

The Physician's reference book of nutritional diets with recipes will be sent free to physicians or hospitals, upon request, if they will address the Knox Gelatine Laboratories, 438 Knox Avenue, Johnstown, N. Y.

In addition to the family size packages of "Plain Sparkling" and "Sparkling Acidulated" (which latter contains a special envelope of lemon flavoring,) Knox Sparkling Gelatine is put up in 1 and 5 pound cartons for special hospital use.

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THE PROGRAM FOR THE COMING SOUTHWESTERN MEETING

El Paso

Nov. 5, 6, 7, 1925

The following program has been prepared for the Scientific part of the meeting. Special attention is called to the unusually large number of distinguished guests. They are so well known that they need no introduction and the mere fact that they are going to be with us, gives promise of a program that will be well worth while. The symposium on "Cancer" will be hard to duplicate in any meeting and everyone should be on hand early so as not to miss it as it appears on the first day.

As has been customary at all past meetings, the forenoons will be devoted to clinics. The complete program for the clinics will be ready for distribution at the registration desk. On the first day, from 8:30 to 10:30, there will be group clinics at the doctor's offices and laboratories. From 10:30 to 12:00, Dr. J. H. Musser will hold a medical clinic. The morning of the second day will be devoted to surgical clinics and Dr. Jackson will hold a "Dry Clinic" for the benefit of the eye men. It is hoped that some of the other distinguished visitors will hold clinics on this day. The forenoon of the last day the clinics will be on medicine and tuberculosis, and it is hoped that Dr. Forster will hold a clinic on "Tuberculosis" at this time.

The meeting will be held in the auditorium of the Scottish Rite Cathedral. This is one of the finest auditoriums in the country, the acoustics are perfect, it is

lighted by artificial light, ventilated by forced feed and there is a fine screen and it will be very easy to show lantern slides.

The following list of committees have been appointed:

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SCIENTIFIC PROGRAM

NOVEMBER FIFTH

1. *PRESIDENT'S ADDRESS.*
DR. H. H. STARK, El Paso, Texas.
2. *HYPERNEPHROMA.*
DR. CHAS. S. VIVIAN, Phoenix, Arizona.
Discussion: DR. K. D. LYNCH, El Paso, Texas.
3. *DIAGNOSIS OF CANCER.*
DR. J. H. MUSSER, New Orleans, La.
Professor of Medicine, Tulane University.
4. *RECENT VIEWS OF CANCER BY EXPERIENCE WITH OCULAR TUMORS.*
DR. EDWARD JACKSON, Denver, Colo.
5. *RADIOTHERAPY OF MALIGNANCY WITH SPECIAL REFERENCE TO BREAST CARCINOMA.*
DR. B. H. ORNDORFF, Chicago, Illinois.
Professor of Roentgenology, Loyola University School of Medicine.
6. *TULAREMIA.*
DR. M. B. CULPEPPER, Carlsbad, New Mexico.
Discussion: DR. ANCIL MARTIN, Phoenix, Ariz.
7. *ATYPICAL MASTOIDITIS.*
DR. JOHN J. MCLOONE, Phoenix, Arizona.
Discussion: DR. J. M. BRITTON, El Paso, Texas.
8. *SPECIALISTS.*
DR. WILLARD SMITH, Phoenix, Arizona.
Discussion: DR. E. A. DUNCAN, El Paso, Texas.

NOVEMBER SIXTH

9. *MAGNETIC FOREIGN BODIES WITHIN THE EYE (100 Cases.)*
DR. ANCIL MARTIN, Phoenix, Arizona.
Discussion: DR. S. A. SCHUSTER, El Paso, Texas.
10. *HEAD PAINS OF OCULAR ORIGIN.*
DR. RODERICK P. O'CONNER, Oakland, Cal.
11. *THE EVALUATION OF SURGICAL SPLINTING IN SPINAL CARIES.*
DR. JOHN C. WILSON, Los Angeles, Cal.
Professor Clinical Orthopedic Surgery, College of Medical Evangelists.
12. *GALL-BLADDER DRAINAGE.*
DR. GEO. E. GOODRICH, Phoenix, Ariz.
13. *TECHNIC IN CHOLECYSTECTOMY.*
DR. H. A. MILLER, Clovis, New Mexico.
Discussion: DR. JAMES VANCE, El Paso, Tex.
14. *THE SURGICAL TREATMENT OF CHRONIC HEADACHE.*
DR. E. R. CARPENTER, Dallas, Texas.
15. *PREPARATION OF PATIENTS FOR SURGERY TO INSURE SAFETY AND COMFORT.*
DR. R. J. STROUD, Tempe, Arizona.
Discussion: DR. W. L. BROWN, El Paso, Tex.

NOVEMBER SEVENTH

16. *THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF THE CHEST BY X-RAY.*
DR. JAMES L. MCKNIGHT, Tucson, Ariz.
17. *CLINICAL CONDITIONS SIMULATING PULMONARY TUBERCULOSIS.*
DR. FRED HOLMES, Phoenix, Arizona.
Discussion: DR. W. W. WATKINS, Phoenix, Arizona.
DR. R. B. HOMAN, El Paso, Texas.
18. *ALLERGY AND IMMUNITY IN TUBERCULOSIS.*
DR. JOHN W. FLINN, Prescott, Arizona.
Discussion: DR. J. M. HENDRICKS, El Paso, Texas.
19. *REPORT OF A CASE OF PULMONARY TUBERCULOSIS TREATED WITH SANOCRYLIN.*
DR. H. A. RASMUSSEN, A. S. (USPHS), Ft. Stanton, New Mexico.
Discussion: DR. E. D. PRICE, El Paso, Texas.
20. *(Title Not Yet Received.)*
DR. A. M. FORSTER, Colorado Springs, Colo.
Medical Superintendent, Cragmor Sanitarium.
21. *BASAL METABOLISM IN PULMONARY TUBERCULOSIS.*
DRS. W. A. GEIKER AND B. J. WEIGEL, Albuquerque, New Mexico.
Discussion: DR. J. W. LAWS, El Paso, Texas.
22. *INDICATIONS FOR OPERATIVE INTERFERENCE IN DISEASE OF THE CHEST.*
DR. C. C. DAVIS, Albuquerque, New Mexico.
23. *EXTRA-PLEURAL THORACOPLASTY.*
DR. L. S. PETERS, Albuquerque, New Mexico.
Discussion: DR. F. P. MILLER, El Paso, Texas.

BUSINESS MEETING.

On the first night, the whole society is invited to the William Beaumont Hospital for their annual clinic. Anyone who has attended one of these clinics will agree that they are exceedingly well worked up and a very interesting group of cases are shown and it makes a very interesting and delightful evening. Heretofore, there was not sufficient room to hold a clinic properly, but a new gymnasium has been completed at the Hospital, with ample seating capacity, and this will be used for the clinic. Col. Shockey and his staff are exceedingly generous and will be delighted to see all the members of the society present.

The second evening will be devoted to entertainment. Just what will take place has not yet been announced by the committee but a good time is in store for everyone.



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 Smith, Willard, Phoenix, Ariz.
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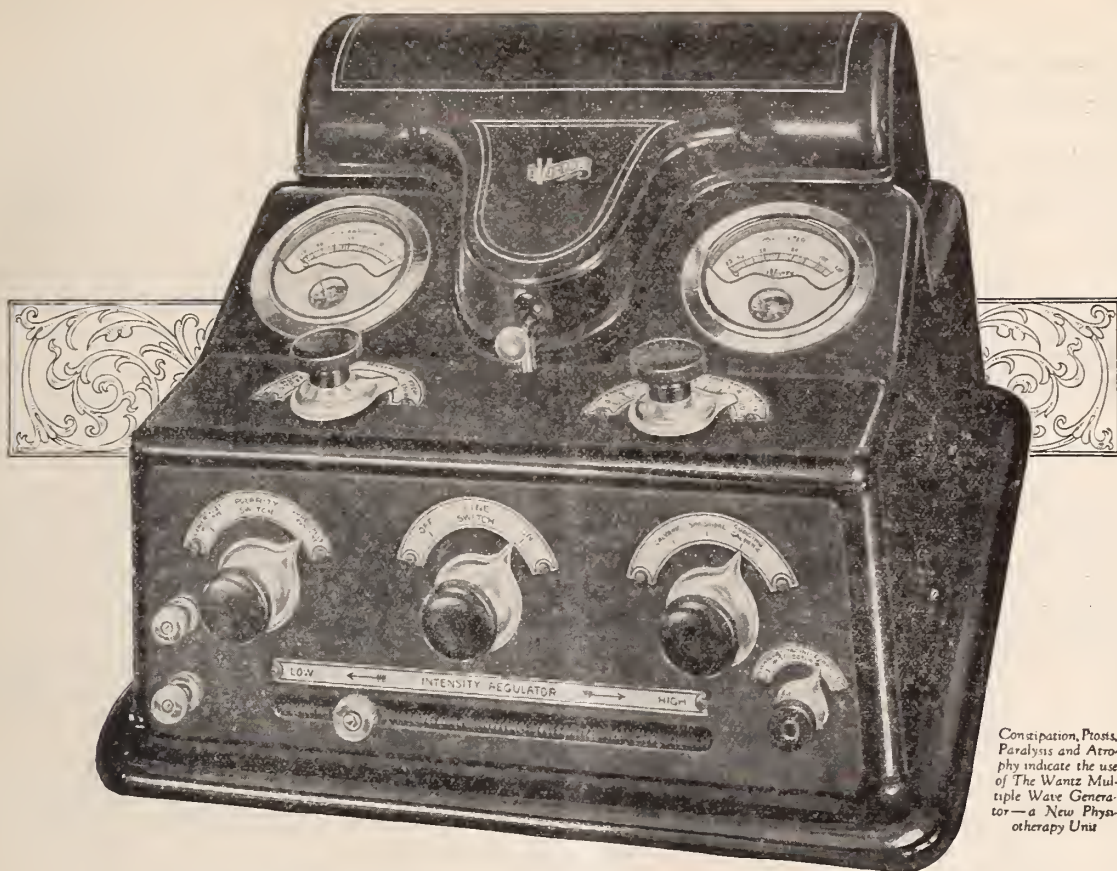
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SPECIAL ANNOUNCEMENT

Dr. E. I. McKesson of Toledo, Ohio, an expert gas-oxygen anesthetist and Dr. F. H. McMechan of Avon Lake, Ohio, Secretary General of the National and International Anesthesia Associations, after attending Southern Anesthesia Association meetings in Dallas on November 9-11, will stop in El Paso the evening of November 13th and in Phoenix November 14th.

Dr. McKesson will talk on Prevention and Treatment of Shock, Rebreathing and Blood Pressure Changes—showing lantern slides to illustrate blood pressure changes.

Dr. McMechan will deliver his lantern slide lecture on Evolution of Surgical Risks. Dr. McMechan comes to us in a wheel chair—account arthritis deformans—and it is worth coming miles just to meet him.

The El Paso bunch promise a Juarez dinner Nov. 13th, and Mrs. Sexson at Arizona Deaconess Hospital, Phoenix, will give a dinner Nov. 14th.

Write Dr. H. H. Varner, Secretary El Paso County Medical Society, or Dr. H. R. Carson, Phoenix, for dinner reservations.

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A rather unique institution has been opened in El Paso, with the approval and support of the medical profession. It is located at 4220 Oxford Street, and is to be managed by Mabel E. Wheeler, a graduate nurse from Vanderbilt University Hospital, Nashville, and of the Methodist Training School for Social Service.

The purpose of this cottage is to furnish home accommodations under competent professional supervision for several classes of children; medical or surgical cases who are convalescent after treatment in hospitals but who still require special nursing care; children of parents who are ill and who wish to have their children safely cared for under home surroundings; children whose parents wish to travel or must leave them for various reasons; children of parents who must work and cannot properly care for them.

Medical certificate from the family physician must accompany any child sent to this home. Children with infectious diseases are not accepted.

The Cottage is located on Government Hill, one hundred feet from car line, and has an attractive play yard. Such an institution as this should fill a long felt need in any community.

YAVAPAI COUNTY MEDICAL SOCIETY

The Yavapai County Medical Society co-operating with the Medical Officers at Whipple Barracks began their 1925-26 post graduate work with an "open" meeting, on Wednesday evening, September 16, 1925.

This was one of the largest meetings ever held by the two organizations, there being twenty-nine doctors present. The occasion for such an auspicious "opening day" was the visit of Dr. Allen K. Krause, associate professor of medicine at the Johns Hopkins University.

Dr. Krause, as a result of his vast research in the pathology of tuberculosis, was able to give us a most inspiring lecture, holding his audience of medical men in deepest attention for one and a half hours.

Thursday noon the doctors tendered a luncheon to Dr. Krause at the Owl. After the luncheon Dr. Krause continued his lecture on the pathology of tuberculosis illustrated with lantern slides. Again he demonstrated his ability as a teacher and lecturer and the medical men present considered themselves most fortunate in being able to hear this noted instructor and authority on tuberculosis.

Thursday night Dr. Krause addressed a public meeting in the High School Auditorium held under the auspices of the Monday Club. The ladies of the Monday Club had "sold" their lecturer and the hall was filled to capacity with an intelligent and deeply appreciative audience.

It is indeed seldom that Prescott is honored by the presence of so great an authority in any department of medicine and we were eager and did make the most of his visit to "The Mile-High City."

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Dr. and Mrs. Krause were house guests of Dr. and Mrs. John W. Flinn during their stay in Prescott.

To return for a moment to the plans of the Yavapai County Medical Society and the Medical Officers at Whipple. We are for the purpose of the year's work again divided into three groups. The team captains are as follows: Group I, Dr. Thomas; Group II, Dr. Allen; Group III, Dr. Southworth. the personnel of the groups is listed below.

GROUP I

Thomas, Team Captain; De Witt, Gatterdam, Linn, Moore, McNally, Malone, Starnes, Sullivan, Siebert, Swetnam, Yount.

GROUP II

Allen, Team Captain; Allee, Buck, Carlson, Devine, Flinn, Herrick, Herrick, Jones, McWhirt, Melick, Taylor, Wilson.

GROUP III

Southworth, Team Captain; Bendict, Bassett, Brooks, Carhart, Hedberg, Looney, Loewy, McCarty, Rene, Thigpen, Walsh.

The next meeting will be held at the Yavapai Club, Wednesday, September 30th, 7:30 P. M. Groups I and II have the case histories, Group III will act as the "judges." Last year was the most successful yet, but we hope to accomplish even more this year in post graduate study and sociability.

C. E. YOUNT, Secretary.

EL PASO COUNTY MEDICAL SOCIETY

September 7, 1925

The meeting was called to order by Dr. John A. Hardy, president, at the University Club at 7:30 p. m. There were thirty-four members and fifteen visitors present.

Dr. A. J. Pacini, Chief of the Department of Bio Chemistry for the Victor X-Ray Corporation, Chicago, gave an address on the Ultra-Violet Rays. Dr. Pacini presented some very interesting statistics in both biology and physics in bringing out the discovery of the ultra violet ray. He also presented some case histories in which the ultra violet ray has made some remarkable cures. This was a very interesting lecture and very much enjoyed by the society.

There was no business taken up at this meeting, and the society adjourned at 9:30 p. m.

H. H. VARNER,

Secretary.

EL PASO COUNTY MEDICAL SOCIETY

(September 14, 1925)

The meeting was called to order at 7:30 p. m. by Dr. John A. Hardy, president, at the University club. There were thirty-one members and four visitors present.

Dr. E. J. Cummins presented a paper on "Sterility." Dr. Cummins brought out the value of careful examination in these cases, and emphasized the fact that the cause of sterility in a large number of cases is due to the natal part, and that at the present time the best results are probably not obtained by surgery. Paper was discussed by Dr. Cathcart.

Dr. W. L. Brown reported a case of tularemia. Dr. Brown had checked this case up very thoroughly, and confirmed the diagnosis by laboratory test—this probably being the first case reported in Texas. Discussion by Dr. R. A. Wilson, and Dr. Irving McNeil.

Dr. Orville Egbert, Chairman of the Committee on the meeting of the Medical Society of the Southwest, reported that owing to the meeting of the Southern Medical Society in Dallas in November it had been decided not to meet in El Paso this year. Dr. Egbert desired to know the wishes

of the Society relative to obtaining the meeting in El Paso in 1926. The discussion brought out the fact that the American Medical Association will meet in Dallas in 1926, and motion was made by Dr. J. W. Cathcart that Dr. Egbert be made chairman of a committee to arrange for the meeting of the Medical Society of the Southwest for the following year. Dr. W. W. Waite wants a list of the men who will be able to take care of the individual visitors at the coming meeting of the Medical & Surgical Association of the Southwest in El Paso, Nov. 5-7.

Dr. Harry Leigh, Chairman of Clinics for the meeting of the Medical & Surgical Association, wants the program of the individual members for the clinic meetings of the association.

H. H. VARNER,

Secretary.

EL PASO COUNTY MEDICAL SOCIETY

September 21, 1925

The meeting was called to order at 7:45 by the president, Dr. John A. Hardy. The secretary being absent, Dr. Homan was appointed temporary secretary.

Members present were: Doctors McNeil, Duncan, Cummins, Vandevere, Prentiss, Strong, Vernon Rogers, Cathcart, Sharp, Jamieson, Kinnard, Wilson, Casellas, Johnson, Miller, Laws, Waite, Hardy and Homan.

Visitors were Dr. Young of St. Louis; Majors Wright, Scott and Hagula, and Ralph Homan.

There being no clinical cases, the paper of the evening—"X-Ray Studies of Lesions in the Upper Right Quadrant," by Dr. Casellas—was presented. It was discussed by Doctors Cathcart, Prentiss, Miller and Major Wright.

Two cases of foreign bodies, one in the esophagus—a Mexican coin—and the other in the right

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bronchus—an ordinary tack—were presented by Dr. Vandevore. The foreign bodies were removed by him and both patients have entirely recovered from the effects of them.

A motion was made by Dr. Cummins and seconded by Dr. Strong that the meetings of the Society be held at 8:00 p. m. An amendment was offered by Dr. Homan and seconded by Dr. Cathcart that the hour be 7:30 instead of 8:00. The amendment carried and then it was found that both motions were out of order since the by-laws provide that the meeting be held at 7:30, and the president announced that hereafter the meeting would begin promptly at 7:30 p. m.

R. B. HOMAN, Secretary Pro-tem.

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Some of our most valuable drugs are dependent entirely upon the pharmaceutical manufacturer for their reliability. Take ergot as an example. It is not to be expected that all natural specimens will contain the same percentage of active principle, and experience has proved that they do not. The necessity of standardizing ergot preparations has long been apparent, but chemical methods were not available because of the complexity of the active principles. Once it was thought that ergotinic acid was the active principle, but now the less of this an ergot preparation contains the higher it is rated, other things being equal. The alkaloid ergotoxin is very important, but certain amounts of the amines, histamine and tyramine, must also be present.

Since, however, ergot has long been used in medicine for its effect upon the involuntary muscles, the idea occurred to Dr. Houghton, of Detroit, in 1895, that an ergot preparation might be tested by administering it to cocks and observing its effect upon the comb, the degree of bluing or blackening produced being taken as an indication of the physiologic action of the specimen. In 1898 this method was adopted by Parke, Davis & Co. as a standard method for assaying their commercial products of the drug. It is now generally recognized as the most practicable method of assay known.

It is sometimes desirable to administer ergot hypodermically, but the ordinary fluid extracts are not suitable for this purpose. To give a small dose double efficiency, a preparation is now available called Ergot Aseptic, each cubic centimeter of which is equivalent to two cubic centimeters of the official fluid extract. Further particulars are given in the Parke, Davis & Co. advertisement elsewhere in this issue.

PIMA COUNTY (ARIZ.) NEWS NOTES

The Pima County Medical Society recently enjoyed a series of three lectures on the Pathology of Tuberculosis by DR. ALLEN K. KRAUSE, of John Hopkins University, Baltimore, Editor of the American Review of Tuberculosis. He also addressed audiences at the University of Arizona and at the High School, which were open to the general public, his remarks being along the line of progress in the prevention of tuberculosis. While in Tucson, Dr. and Mrs. Krause were the guests of Dr. and Mrs. B. L. Wyatt, and also attended several social functions arranged by Tucson physicians and their wives.

DR. AND MRS. GEO. E. DODGE have returned from Europe, having spent most of the summer in Paris. After arriving in this country they motored from the east back to Tucson.

DR. P. B. NEWCOMB was recently appointed attending specialist in charge of laboratory work at the United States Veterans' Hospital No. 51 at Tucson with the title of Clinical Pathologist.

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LOS ANGELES

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DR. JEREMIAH METZGER left during the summer for a year of study and investigation, especially in the field of Heliotherapy, in Europe. He proceeded first to Paris, where he acted as one of the delegates to the International Conference on Tuberculosis for the National Tuberculosis Association. The greater part of the year will be spent at Leysin, Switzerland, with Dr. Rollier of Heliotherapy fame. Later, some time will be devoted to Orthopedic Surgery in Vienna as it applies to tuberculosis of the bones and joints.

Dr. Metzger will make an exhaustive survey of heliotherapy institutions while abroad. Southern Arizona offers so much in the way of a large percentage of the possible total of sunshine, that Dr. Metzger and his associates, Dr. Mills and Dr. Wyatt expect to establish at Tucson a large institution for the exclusive treatment of extra-pulmonary tuberculosis. This institution will be patterned after the Rollier Cliques.

DR. AND MRS. E. J. GOTTHELF, who were married during the summer, have returned from their honeymoon trip to Europe. Dr. Gotthelf also attended clinics in Vienna and London while away.

DR. AND MRS. MEADE CLYNE recently suffered the loss of their eldest son from typhoid fever. Another son is afflicted with the same disease, but is slowly convalescing.

The campaign to provide a new home for the Sisters at ST. MARY'S HOSPITAL will shortly be reopened following the vacation period. Efforts along this line last spring netted six thousand dollars of the desired goal of twenty-five thousand.

DR. ALVIN KIRMSE, formerly of the Thomas-Davis Clinic of Tucson, announces the removal of his office to 21 East Pennington Street, Tucson, Arizona.

MARICOPA COUNTY MEDICAL SOCIETY WOMEN'S AUXILIARY (Phoenix, Ariz.)

The Women's Auxiliary of the Maricopa County Medical Society held a dinner on October 3rd at the Arizona Club, to plan their winter activities. This dinner was attended by thirty wives of the physicians of the county, and a very enthusiastic meeting was held. This auxiliary bids fair to put the regular society to shame in attendance and in activity. They elected officers for the year, as follows:

President—Mrs. T. E. McCall, Phoenix.
Vice-President—Mrs. A. A. Sholley, Phoenix.
Sec'y.-Treas.—Mrs. R. C. Martin, Glendale.

DR. MARY L. NEFF, of Los Angeles, neuro-psychiatrist formerly located in Phoenix, was a recent visitor to the latter city as a consultant in some important cases.

At the request of several members of the profession of Phoenix, she has decided to make a monthly visit with office facilities in the Goodrich Building. Her announcement card, to be found elsewhere in this journal, states that she will be in Phoenix the first Saturday and Sunday of each month at 605 Goodrich Building.

MARICOPA COUNTY MEDICAL SOCIETY Phoenix, Ariz.

The first meeting of the fall season of the Maricopa County Medical Society (Arizona) was held in the Directors' Room of the Deaconess Hospital, Saturday evening, October 3rd. Dr. Mary L. Neff, of Los Angeles, formerly of Phoenix, was a visitor, presenting the principal address.

Dr. G. O. M. Brockway, president, presided, and gave a few introductory remarks about the winter's program, which is planned to be given up almost entirely to papers and clinical discussions by the local members.

The application of Dr. E. J. Gungle for trans-

fer from Pima County to Maricopa County was referred to the Board of Censors to ascertain whether Dr. Gungle is permanently located in Maricopa County.

Dr. Harbridge asked for further subscriptions to the auto emblems of the American Medical Association, these to have the name "Arizona State Medical Association" on them.

The matter of proper publicity by the county society came up from several angles, the most important one being the opportunity to use the new radio broadcasting station in Phoenix in a suitable and ethical manner. Dr. Brockway appointed a Committee on Public Policy to investigate this and other matters in the publicity field; this committee consists of Drs. Harbridge, O. H. Brown and Watkins.

Dr. Neff's talk was on "The Unusual Child," covering the following points:

- (a) The subnormal child, due to biological defects.
- (b) The subnormal child, due to birth injury, usually somewhat loosely designated as "Little's Disease."
- (c) The endocrinopathic child:
 - (1) The low blood pressure, asthenic child; usually showing fear, timidity and fatigue.
 - (2) The subthyroid child, showing indolence, essential mental retardation, low pulse, temperature and blood pressure and frequently retarding mentally, after a period of normality.
 - (3) The child with "crises," which may be the precursor of epilepsy, hysteria or chorea.
- (d) The precocious child where biological development is being sacrificed to function.

Special types of unusual children include a large variety such as the child who has tantrums; the child who refuses to play, who is usually what is called an "introvert;" the child who sleeps badly; the child who has been normal, and suddenly retards. All these children should have very careful study and attention and this has been exceedingly difficult to obtain from the medical profession as many of these conditions do not appear to fall under any one specialty, but require a sort of synthetic care from the combined standpoint of general medicine, neurology, psychiatry, psychology, and the field of metabolism, including study of the endocrine organs and their function.

In this connection may be mentioned the not uncommon cases of children where a blow on the head has been followed by a traumatic psychosis, or other evidence of serious injury to the central nervous system. These children do not receive the prophylactic care which might save them from future disaster. A month in bed, in a quiet and darkened room, after every head injury is a wise prescription, but it is a difficult matter to enforce as the need of it is not obvious to the child's parents when he apparently recovers from the effects of the injury promptly.

Dr. Harley Yandell of Phoenix read a well-prepared paper on "Tuberculosis of the Middle Ear." This will be found elsewhere in this issue of SOUTHWESTERN MEDICINE, with the discussions.

Dr. Will Wilkinson read a paper on "Ultra-Violet Radiation." It reviewed the investigations into the biological effects of ultra-violet rays, and the application of these to the treatment of disease. Dr. Wilkinson was very enthusiastic in his expectations from ultraviolet treatment, and predicted that every well equipped hygienic home would some day have an ultraviolet lamp just as much a matter of course as they would have a bathtub.

This paper and its discussions will appear next month in SOUTHWESTERN MEDICINE.



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Dosage: All doses are alike. Each syringe contains one dose (2c.c.). The amount and strength of the virus is the same in each of the 14 doses. One dose is given daily for fourteen days. It is not necessary for the intervals between doses to be exactly 24 hours, for the time of day for the injections can be arranged to suit the convenience of the patient and the physician. Children are treated with the same dosage as adults.

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NOVEMBER, 1925

No. 11

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ARIZONA STATE MEDICAL ASSOCIATION
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AN X-RAY STUDY OF THE RIGHT UPPER QUADRANT LESIONS

P. R. CASELLAS, M. D., El Paso, Texas

In the study of abdominal pathology nothing has been more perplexing to us than those lesions occurring in the right upper quadrant, where a gastro-intestinal examination is, in our opinion, of tremendous importance and of considerable help to the clinician. At times it is impossible to distinguish the different lesions of the right upper quadrant clinically, simply because they have in common a very similar symptomatology and because at times even the history of the case is very much misleading. In this study, we will attempt to separate these different lesions as far as possible, attributing to them different roentgen signs.

To begin with, let us discuss the subject of gallbladder disease. An x-ray examination of the gallbladder should, in our opinion, go beyond the mere radiography of the gallbladder region, even though by newer methods we are approaching the time when the gallbladder will be studied independently of the gastro-intestinal tract. To this end, Graham and Cole, of St. Louis, have come forward with a technic which appears to offer a brilliant future. They inject into the veins a solution of five and a half grams of the sodium salt of tetraiodophenolphthalein in 40 c. c. of water. This is injected in two doses, one-half hour apart, in the early morning hours of the day of the examination. The patient is examined radiographically at the end of four, eight, twelve and twenty-four hours. A normal gallbladder casts a shadow of maximum density and size at the four hour examination, which diminishes gradually throughout the remaining examinations. In a diseased gallbladder the shadow fails to appear, or appears very faintly at the end of four hours after the injection, and does

not seem to have the flexibility in density and size that the normal gallbladder has. When the shadow fails to appear, the case is considered distinctly and without a doubt pathological, simply because the bile, in its inspissated condition, fails to absorb the injected solution.

The use of the sodium instead of the calcium salt was adopted because of the advantages in solubility and the iodo substituted for the bromo because it produces less constitutional symptoms. With the use of the former, only a very small percentage of cases suffer slight constitutional symptoms, such as nausea and headache, which appear from ten minutes to an hour after the injection of the salt. More recently, Lester Whitaker of the Peter Bent Brigham Hospital read before the Harvard Medical Society a paper dealing with the administration of **piliophen** (under which name the sodium salt of tetraiodophenolphthalein is also known) by mouth. M. C. Sosman, roentgenologist to Peter Bent Brigham Hospital, observed, while doing a gastro-intestinal examination on a patient, who had previously been injected with piliophen, that the gallbladder shadow reappeared at the end of 72 hours, thus offering conclusive evidence that the salt was absorbed from the intestinal tract. This led to further experiments until the following technic was arrived at: The patient is given supper without meat and fats. Starting at 8 p. m. one five grain pill for every ten pounds of body weight, not to exceed twenty pills, are given the patient, four pills every half hour. On the following day three radiographic examinations are made at the end of fourteen, sixteen and eighteen hours. Between the last two the patient is allowed to eat a meal

high in fats and proteins. With this method the degree of gallbladder density, when the gallbladder registers, is of no importance. More attention is paid to the flexibility of this organ as noticed in the film taken after the noon meal. If the gallbladder shadow is much smaller than we know that the flexibility of the gallbladder walls is normal, that it is emptying properly and is therefore normal. But when the shadow fails to register then the examination is of no value and should be checked up either with a re-examination by the intravenous method as is done by Graham or by gastric examination with the barium meal, as practiced by us. Radiographing these cases without the use of the above described technic, is hardly of any use, for even though radiologists differ as to the percentage of biliary calculi discovered on an x-ray examination, we must confess that our percentage has been extremely low. In nearly two years of roentgenological practice in El Paso, we have seen two cases in which biliary calculi were diagnosed without the aid of imagination.

Examination of the gallbladder can be accomplished without the Graham technic, in a very satisfactory manner by a careful study with the barium meal. If this is given to the patient, and the patient lies in the supine position, fluoroscopy will reveal a phenomenon which, according to our observations in the last few years, has never failed to mean a right upper quadrant lesion, not necessarily of gallbladder origin.

This phenomenon consists of a spasm of the pars media and pylorus in which this part of the stomach assumes a tube like appearance. Some times the spasm is so pronounced that the meal is barred from entrance into the lower segments of the stomach. As soon as the patient is turned to the prone position, this spasm disappears. We believe there is an anatomical reason for the occurrence of this spasm,—the stomach being in a place closer to the anterior wall, with the patient lying in the supine position, the stomach full, there is a dragging on the fixed pylorus which, by reflex, brings about the spasm, which in turn disappears as soon as this pulling is released by the patient being turned over prone.

Now, if we add to this phenomenon, fixation and distinct tenderness on deep palpation over the fixed structures, then we can reasonably believe that we are dealing with a gallbladder condition, and not with simple adhesions, congenital or otherwise. We should be very careful in distinguishing this phenomenon from a spine pressure fill-

ing defect observed on the very thin, in which cases the stomach is seen empty at the portion that crosses the spine. A slight turning of the patient to the right in these cases will show the nature of the filling defect.

Distinction also should be made between this phenomenon and typical pylorospasm, sometimes accompanying duodenal ulcer or hyperacid stomach. The pylorospasm is limited, as its name implies, to the pylorus, lasts longer than the above described phenomenon, and is not released by change of position of the stomach in reference to the anterior abdominal wall. Pylorospasms are usually constant, occasionally lasting so long as to be the causative factor of a six hour or even a twenty-four hour retention. In these latter cases, and in order to distinguish them from actual organic obstruction, it is necessary to saturate the patient with atropin, and to proceed to a second examination that will usually show the absence of the pylorospasm. Atropin, however, is not one hundred percent reliable, for we have seen cases in which the pylorospasm did not disappear, and an erroneous diagnosis of obstruction was made. At operation, no obstruction was found, the spasm having been released by the general anesthesia.

The extra luminal pressure filling defect, semi-lunar in shape, often observed on the greater curvature side of the duodenal bulb, does not always and necessarily mean gallbladder disease, because the radiographic examination may be made at a time when an over filled gallbladder is capable of producing the indentation.

Adhesions in the right upper quadrant not accompanied by gallbladder disease, although giving rise to the spastic phenomenon above mentioned, do not elicit the associated symptoms of tenderness and pain. We believe that a thorough and careful fluoroscopic examination is sufficient in the average case to afford the data necessary to arrive at a definite conclusion. Nevertheless, for the sake of depriving our opinion of a personal character, we always endeavor to take a series of films with the patient in the prone position. These films of course will not reveal the spastic contractions of the pars media and pylorus, because, as we stated, these disappear when the patient is placed in the prone position, but it will invariably show a distorted first portion of the duodenum under the arch of the ribs, with marked distinct angulation of the second portion of the duodenum over the first, the second portion being partly overshadowed by the pyloric end of the stomach, but also because at times it re-

veals evidence of gas retention in the upper duodenum.

Then too, we must never forget that in a high percentage of cases a chronically inflamed appendix will give us a symptomatology which resembles very much the symptomatology of some of the right upper quadrant lesions. The appendix also may be abnormally placed, either congenitally or by acquired adhesions. Rather recently we had a case in which the cecum was tied down by adhesions internal to the hepatic flexure of the colon. In this case, the surgeon reported to us that at operation the tip of the appendix was found tied up to the right half of the transverse colon, posteriorly, and to the greater curvature of the stomach near the pylorus, by a heavy band of adhesions. To be sure, these cases are most unusual, but nevertheless this patient was treated for gallbladder disease for a number of months prior to the operation.

The roentgen signs of chronic appendix are rather complex, as judged by the diversified opinion of our best roentgenologists. Experience has taught us to believe that the visualization of the appendix, the retention of the meal in it, and even constrictions, have no pathological significance. We have learned to be reluctant as to giving an opinion of the presence of a chronic appendix unless the elements, pain and tenderness on palpation, are in evidence. With this sign, plus fixation and patulency of the cecum, whether the appendix fills or not, a fairly accurate opinion as to the presence of a chronic appendix can reasonably be given.

It will be well at this time to warn the clinician as to the location of this pain on physical examination, because the region of the appendix from a fluoroscopic standpoint changes with the individual. Indeed, in one rare instance, we found it to the left of the median line, almost in the left lower quadrant. Although chronic lesions of the appendix belong to the right lower quadrant, we have mentioned them in this paper dealing with right upper quadrant lesions simply because as stated before at times the symptomatology draws the clinician to the right upper quadrant.

We will pass without mention the many pathological conditions of the liver, surgical or otherwise, for even though they rightfully belong to the right upper quadrant, a simple x-ray examination of this organ is of very little help, save perhaps when a determination of the size is desired. I refer to the x-ray examination done in the average laboratory as simple in order to differentiate it from the more complex

one using pneumoperitoneum. This is a distinct hospital procedure and should never be attempted in an office. A moderate sized calibre needle such as is used for spinal puncture, is inserted between the umbilicus and the pubis, care being taken that the bladder is empty. A large anæsthesia bag is connected by a two way cock to a carbon dioxide cylinder, and to the needle by means of rubber tubing, and by measuring the carbon dioxide by the number of bags injected, the patient is ballooned to the point of tolerance. One-fourth grain of morphine should be given fifteen minutes before the operation.

Carbon dioxide is absorbed very quickly, in a half to three-quarters of an hour, so that all radiographic work should be done as fast as possible. A lateral film taken with the patient in the prone position, with the hips and chest elevated so that there will be no pressure on the abdomen, is of tremendous importance, because by gravity the gas occupies the so-called paravertebral space, which is wholly or partly occluded when a tumor arises from the kidneys or spine. Antero-posterior views reveal the liver beautifully outlined so that tumors arising from it, variations in outline and enlargement of a single lobe, subphrenic abscess and so on, can easily be detected. This technic is devoid of danger for even though the patient is in great distress shortly after the injection and slight symptoms of shock may appear, they disappear very quickly, and are never so intense as to cause justified alarm.

During our stay at the United States General Hospital No. 2, hundreds of cases were done without subsequent bad results. When this technic first came to light, oxygen was used and the results were bad because this gas is very slow in its absorption, taking hours or even days to disappear. But since the advent of carbon dioxide, the technic is being rather routinely used in our leading medical centers.

If all the cases of duodenal ulcer gave us the classical signs of this pathological entity, it should hardly be necessary to submit the patient to the expense and trouble of a gastro-intestinal examination; but the absence of classical symptomatology is so common that in a large percentage of cases a careful x-ray study is mandatory. Indeed, as Franklin S. White of Boston advocates, every case of persistent chronic indigestion should be thoroughly examined by means of the x-ray. In no occasion in gastro-intestinal work should the roentgenologist be more thorough in his examination than in cases where duodenal ulcer is a possibility, for in these cases, indirect

fluoroscopic signs are far more important than the filling defect revealed upon the plate, sometimes wanting.

Carman was the first one to call the attention to the association of the three "hypers,"—hyper-tonicity, hyper-peristalsis and hyper-motility, which united to tenderness localized in the duodenum, and pylorospasm, constitute the indirect signs of duodenal ulcer which permit a roentgen diagnosis of this condition, even though the typical duodenal filling defect may be missing.

Chronic duodenitis with dilatation and duodenal diverticuli, since the recent developments of x-ray in the examination of the gastro-intestinal tract, has been found to be much more common than formerly supposed. When these conditions are suspected, radiography in the right oblique position, that is, the patient in an oblique position with the right side nearest to the plate, is essential, for in a high percentage of cases, the diverticulum superimposes a spinal shadow and can not be seen under fluoroscopy.

The importance of the right upper quadrant lesions from an x-ray view point, deserves a very extensive discussion, which

would make this paper entirely too long, so that we have not attempted to go into the finest details which accompany each of the conditions mentioned.

The roentgenologist may be regarded by his colleagues as a consultant or as a photographer, just as he chooses. If, by the accuracy of his methods and the soundness of his judgment, he gains the confidence of his colleagues, he becomes a consultant in the medical profession. On the other hand, if he practices his specialty with commercial ideas as a primordial object, and satisfies himself with a hurried fluoroscopic examination and the taking of one or several plates without inquiring through the referring physician into the history of the case, or surrenders his right of opinion to others, then he can not complain to any one if he is mentally excluded from the realm of the medical fraternity.

To attempt a definite diagnosis from x-ray findings alone, not seeking, or even ignoring, the clinical findings, is futile and dangerous. For the welfare of the patient, for the good of the medical profession, and for the sake of the specialty we practice, we ask for closer relations between the clinician and the roentgenologist.

FRACTURES OF THE ELBOW

E. J. CUMMINS, M. D., El Paso, Texas

This paper will be confined to fractures of the lower end of the humerus. I desire to review the anatomy of the elbow, and more especially the lower end of the humerus, a thorough understanding of which is necessary to appreciate the pathology, make an accurate diagnosis and institute a rational treatment. For every sign and symptom associated with an injury to the elbow is dependent upon a definite anatomic change.

A plane drawn through the middle of the shaft of the humerus meets a plane drawn through the middle of the ulna at an angle of 170 degrees. A plane drawn transversely through the condyles of the humerus is not at right angles to a plane drawn through the shaft, hence, the anatomical reason for the normal carrying angle.

The lower end of the humerus is broad from side to side, with an articular surface below and two lateral projections, the condyles. The inner condyle is much larger, is sharp and prominent and gives rise to the flexor pronator muscles; it is grooved behind for the ulnar nerve. The outer projection or external condyle is a slightly raised knob from which the extensor muscles and supinator arise. The articular sur-

face consists of two parts, an inner or trochlea for the ulna, and an outer or capitellum for the radius. There is a depression above the trochlea, both before and behind; the coronoid fossa in front receives the coronoid process of the ulna, and the olecranon fossa behind receives the olecranon process. The bone separating these fossae is very thin.

The synovial membrane is attached on the inner side just below the internal epicondyle; thus fracture of the latter does not necessarily extend into the joint. The capsule is attached at a level higher than the epiphysis, consequently separation of the epiphysis may not show much deformity. The lower epiphysis develops from four centres; the largest, and first to appear, is that for the capitellum which appears about the end of the first year; one for the inner condyle appears at about the fifth year; one for the trochlea about the eleventh year; one for the external condyle at about the twelfth or fourteenth year. The centres for the capitellum, trochlea and external condyle are entirely fused from the twelfth to the thirteenth years, and are entirely united with the diaphysis at the fifteenth year, thus leaving further

growth of the bone dependent upon the upper epiphysis. The center of ossification for the internal condyle does not fuse with the diaphysis until the eighteenth year. A lateral x-ray of an elbow flexed to a right angle will show, as pointed out by Dr. Isadore Cohn of Tulane University, the capitellum apparently occupying the sigmoid cavity. In early life there seems to be a wide separation between the articular surface of the capitellum and the greater sigmoid cavity. He shows that if a plane is passed through the middle of the long axis of the shaft of the humerus prior to about the ninth year, it will pass behind the posterior border of the capitellum. After this period the plane bisecting the shaft of the humerus has approximately two-thirds of the lower epiphysis anterior to it. He also points out that if a plane is passed through the anterior limit of the shaft of the humerus it will show at least one-half of the capitellum anterior to it. The bony landmarks which one is able to palpate are the external and internal condyles, the tip of the olecranon process and the head of the radius. With the arm extended the tips of the external and internal condyles and the olecranon are in a straight line, with the forearm flexed at a right angle, these points form a nearly equilateral triangle.

Fractures of the lower end of the humerus may be classified as supracondylar, diacondylar, intercondylar, separation of the lower epiphysis, fracture of the external epicondyle, external condyle, capitellum, internal epicondyle, internal condyle and trochlea.

The following description of these fractures has been taken from Roberts and Kelly.

In the supracondylar variety the fracture line occupies a more or less transverse position across the humerus just above the tips of the external and internal condyles, outside of the capsule; it results as a rule by indirect force on an hyperextended hand, and occurs more often in children than in adults.

The diacondylar fracture is partially intra-articular, above the line of epiphysis, traverses the olecranon and coronoid fossae; the lower fragment consists of the entire articular surface together with the epicondyle and there generally is a marked stripping up of the posterior portion of the periosteum usually with lateral and often posterior displacement of the lower fragment.

The intercondylar fracture is generally the result of direct violence, is frequently

compound and usually occurs in adults; the essential features are separation of the condyles from the shaft and from each other; there is often great displacement and marked injury of soft parts; the upper line of fracture may be transverse and about the same as in the supracondylar fractures; from this transverse line there is a vertical fracture line separating the two condyles.

Separation of the lower epiphysis is observed during childhood, up to the fourteenth and eighteenth years, and when it occurs near the eighteenth year the lesion is usually a separation of epiphysis of the internal epicondyle. The line of fracture may extend through the epiphyseal cartilage or may have a piece of the diaphysis attached.

Fracture of the external epicondyle is infrequently seen. It may be the result of direct violence, or from indirect violence from hyperadduction of the forearm.

Fracture of the external condyle is frequent in children. The line of fracture may run upward and outward, obliquely from the joint surface so that the detached fragments may consist of a part of the trochlea, capitellum and the epicondyle. In many instances the line of fracture begins near the external trochlear ridge and runs obliquely outward to a point below the epicondyle. This latter type is especially seen in children and may be produced by a fall directly upon the external condyle, hyperadduction or a fall upon the hand.

Fracture of the capitellum is one of the rarest occurring at the lower end of the humerus. The injury consists of the separation of the articular surface of the capitellum and is entirely intra-articular.

Fracture of the internal epicondyle may be a separation of the epiphysis seen between the ages of ten and eighteen, frequently found and associated with posterior dislocation of the radius and ulna.

The internal condyle is rarely fractured. The fracture line runs from the inner border above the internal epicondyle down and outward to the trochlear surface. It results from a fall upon the extensor surface of the ulna with the elbow in flexion.

Fracture of the trochlea consists of a chipping of a part of the trochlear surface and is exceedingly rare.

Symptoms: Consist of those common to fractures in general as pain, tenderness, swelling, ecchymosis, loss of function, false points of motion, crepitus, and those pertaining to the fracture in particular. For

instance in the supracondylar variety there is anterior displacement of the lower end of the fragment, and posterior displacement of the upper end of the lower fragment, with the attached structure of the elbow joint. The posterior displacement being due to the force, to the muscle pull upward and backward, of the triceps, and to the upward pull of the biceps and brachialis anticus muscle. The upper arm just above the elbow forms an obtuse angle posteriorly. In the diacondylar variety the lower fragment is quite apt to be displaced laterally, while in the intercondylar variety there is often independent mobility of the condyle and broadening of width between them.

In a separation of the lower epiphysis the radius and ulna may be moved laterally at will, while in fractures of the external epicondyle and the external condyle hyperabduction is possible.

In a fracture of the capitellum the elbow is generally held in a position of partial extension.

In fractures of the internal condyle and internal epicondyle there is abnormal mobility, broadening of the distance between the condyles, loss of the carrying angle, marked deformity and a change in the relation between the tips of the condyles and the tip of the olecranon.

The symptoms of a fractured trochlea are those of an elbow injury.

Diagnosis:—There are certain points one must bear in mind. First, a history of the accident; second, the normal outlines of the elbow; third, certain types are more common in childhood, others more common in adults. In childhood a fracture is usually produced by indirect violence transmitted through the hand and forearm to the elbow. It may result from hyperextension with abduction or adduction, while in adults the fracture is usually produced by direct violence.

The diagnosis of a fracture of the elbow by the symptoms already mentioned is comparatively easy, but the diagnosis of the exact type of fracture and the displacement is often impossible without the use of the x-ray. It is necessary to bear in mind the time of appearance of the ossification centres and the date of their fusion with each other and with the diaphysis, for in early years of life, diagnosis will depend upon the altered relation of the ossification centres to the diaphysis.

Complications: Those most commonly resulting from these fractures are open wounds caused by direct violence; Volk-

mann's ischemic contracture caused by too tightly applied dressings; injury to the nerves, such as musculospiral, ulnar and median; ankylosis, complete or partial and cubitus valgus and cubitus varus; and compression of the bloodvessels.

Treatment: Consists in carrying out the cardinal principles of treatment of any fracture. Early reduction, fixation, and immobilization. Every elbow fracture is an emergency and one should not wait for swelling to subside, for the best way to prevent swelling is to do an anatomical reconstruction. This accomplisheth a functional reconstruction is practically assured. It is wise to have pictures both lateral and anteroposteriorly, often of both limbs and thus an exact diagnosis of the fracture. The fracture should be reduced under the fluoroscope, patient completely anesthetized. Reduction often requires traction, countertraction, extension, hyperextension, flexion and lateral moulding.

The chief problem is fixation. I believe this can best be done in the modified Jones position. That is hyperflexion with supination or pronation depending on whether it is the external or internal condyle that is fractured. In this position flexion of the lower fragment is prevented on account of the relaxation of those muscles attached to the condyle and the triceps tendon posteriorly tends to hold the lower fragment in its proper relation with the upper one. The coronoid process of the ulna fits into the coronoid fossa of the humerus, thus acting as a splint anteriorly. The degree of flexion will depend on the amount of swelling and one must always be on his guard, making frequent inspections during the first seventy-two hours. The radial pulse should always be palpable and the patient should be relatively free from pain. It is generally best to allow for some swelling and when this subsides the flexion should be increased. A gauze dressing is placed between the arm and forearm so as to keep the skin surfaces apart. An adhesive plaster strap two inches in width is applied by placing its center over the upper outer surface of the arm and the two ends are then carried around the external surface of the forearm at a point just above the styloid process of the radius. The wrist should be supported by a sling about the neck, and the limb bound to the body by means of a binder. The dressing should be inspected daily for the first week, and at the end of the second week the degree of flexion may be lessened. At the end of the fourth week allow the forearm to come down only as far as it will with its own weight. Generally within a week or ten

days it will extend to a right angle, but until it has done this no attempt at active motion is made. After the fifth week the patient is instructed to use his arm actively and generally this suffices to get complete extension. Sometimes it is necessary or advisable to have him carry weights such as a flatiron, or pull on fixed objects and later to work on the horizontal bar.

I do not believe in early passive or active motion and do not think it advisable to remove dressings for early massage, as I believe the best way to increase callous formation is to institute these processes early. With proper reduction and fixation, motion will take care of itself. The two chief advantages of this position are that flexion, the hardest motion to obtain, is maintained,

and it immobilizes the fragments. Fixation in the extended position and in the right angle position may be used in some of these fractures provided they are best reduced in these positions.

In certain cases it is necessary to do an open operation and fix or remove the fragments. Dr. John B. Murphy advocated the nailing of the internal and external condyles when fractured.

One should always remember that in children, though reduction may not be anatomically accurate, a good functional result is probable, and that though the deformity may be considerable, function is apt to improve. It is also important to realize that the opposite is true in adults.

ULTRA VIOLET RAYS

WILL WILKINSON, M. D., Phoenix, Arizona.

Light is power. All the power we have comes from the sun. The only exceptions I can think of are Divine power and the force of gravity.

Light, as it comes from the sun, is made up of the infra-red or heat rays, the visible light rays, and the ultraviolet or chemical rays. Beyond the latter are the x-rays and radium rays. At the other end of the spectrum are the wireless telegraphy and radio rays which we produce artificially but which doubtless exist near the sun and are filtered out before reaching the earth.

Sunlight and the mercury vapor lamps produce their rays in the following proportions:

Infra-red,—80% and 20%;

Visible light,—13% and 52%;

Ultraviolet rays,—7% and 28%.

Moisture, dirt, dust and smoke in the air, also clothing and glass, filter out the ultraviolet rays. In fact quartz, clean air, and water are the only forms of matter, other than certain gases, that do not completely obstruct ultraviolet rays. Groth's law states that radiant energy must be absorbed to produce an effect. As nearly all substances absorb ultraviolet rays it is easy to understand that their chemical activity is expended very near the surface of plants and animals. The skin completely absorbs all ultraviolet rays.

The violet rays are cold rays and hence cannot raise temperature and cannot produce hemorrhage except as their chemical action increases metabolism.

Let us consider some general effect of

these rays. Hess reports that all vegetable and animal oils become antirachitic when exposed to ultraviolet rays and may be used in place of cod liver oil; also that mineral oils cannot be activated. Linseed oil or water, to which small amounts of radium have been added, or which were ozonized were not antirachitic. Hess also says that skin, which ordinarily possesses no antirachitic potency, develops this quality after irradiation with violet light.

The Laboratory of Agricultural Chemistry at Madison, Wisconsin, reports: "The antirachitic potency of irradiated fats lies in their unsaponified constituents; and the activity of cholesterol could not be destroyed by long continued irradiation."

"Excessive irradiation of olive oil or cod liver oil was found to result in their inactivity. Activated olive oil kept in stoppered bottles in the dark, was found unimpaired in activity after ten months."

Steenbock and Daniels in their article entitled, "Irradiated Organic Compounds," which appeared in the Journal A. M. A., issue of April 11, 1925, said:

"By exposing such food materials as wheat, rolled oats, corn, hominy, cream of wheat, shredded wheat biscuits, corn flakes, patent wheat flour, cornstarch, meat, milk and egg yolk, to ultraviolet light, they can be endowed with rickets preventing properties. That such a wide variety of foods can be thus affected appears to be due to the fact that practically all naturally occurring foods contain lipoidal constituents of the nature of sterols which can carry

this activation. Cholesterol, for example, as obtained from the brain is entirely inactive, but after exposure to ultraviolet light becomes rickets preventing."

"As fats are good solvents for these lipoids, practically all fresh fats, such as butter fat, olive oil, lard, corn oil, coconut oil and cottonseed oil, can be activated, often to a degree to make them compare favorably with cod liver oil. Antirachitic action consists in the induction of calcium assimilation and its conservation for the animal. This is a matter which concerns not only the young but also the adult."

"It is suggested that these findings may have their significance not only in nutrition, but also in the therapy of those diseases known to respond to irradiation with ultraviolet light."

We read in the Bulletin of the Johns Hopkins Hospital that bactericidal action of light is confined to the ultraviolet region of the spectrum. These ultraviolet rays are Nature's great bactericide.

Colebrook, Edinow and Leonard Hill, workers in the National Institute for Medical Research of London, in 1924 reported that when the shaved skin of a rabbit is exposed to ultraviolet light, the animal blood quickly acquired an enhanced power of killing the ordinary pyogenic staphylococci and streptococci.

Colebrook found that this increased bactericidal power of the blood was due to changes in the functioning of the leucocytes.

Certain spores which withstood boiling water for twenty minutes were killed in ten minutes exposure to ultraviolet radiation.

Janet Clark states that presumably the lymphocyte forming organs are stimulated to greater activity by some photochemical changes produced by ultraviolet light.

Laboratory workers produced an artificial anemia in rats by injecting into their veins certain chemicals. The rats showed marked improvement and increased in hemoglobin as a result of ultraviolet ray treatment. It was found that in their bone marrow and spleen active regeneration was taking place.

The picture of two chickens, of the same age, both fed on the same amount of food, appeared in the Sunday edition of the Arizona Republican some time ago; the marked difference in size and vigor was due to the fact that the food the larger chicken received was always irradiated with ultraviolet light. This experiment was carried out at Johns Hopkins Medical Laboratory.

The Wisconsin Agricultural College reports that hens lay more, larger and strong-

er shelled eggs after exposure to violet rays. Also a breeder of Chow dogs finds that the dogs are larger, stronger, grow more and finer fur, and that fewer puppies die, when the dogs are exposed daily to ultraviolet light.

There are many uses of ultraviolet energy in industry; Parke Davis Co. use it to sterilize certain solutions, Morgan and Wright for aging rubber; also paints, pigments and precious stones are tested for substitutes and imitations.

A dead tooth is easily detected showing up black in violet light.

Under the heading "Factory Made Vegetables Our Future Food," the Popular Science Monthly reports that the noted French scientist, Daniel Berthelot, has made synthetic sugar by bringing the proper gases together under ultraviolet light.

Dr. George of the Packard Motor Car Co. states that he believes that the use of ultraviolet therapy in their plant has reduced the number of amputated fingers about 80% and that it reduced the period of disability at least 40%.

The General Electric Co. installed ultraviolet burners in one portion of a big room. In the course of a month's time it was noted that employees under the ultraviolet light were producing considerably more work than the employees in the other end of the room; and that the percentage of errors was greatly reduced; also that the number of hours lost by sickness was much less.

Coach Stagg of Chicago University has been irradiating his athletic teams with ultraviolet energy for many months.

Popular Science Monthly reports that the Kansas State Agricultural College football players last season were given baths of ultraviolet light as part of their training. This treatment has been especially effective in ridding players of boils, on account of the light's great power as a germicide.

But baths of the light are given these players, too, to build up their strength and fighting qualities, and victory in more than one important contest has been imputed to the treatment. Recent research indicates that ultraviolet light helps in building up new red blood corpuscles. With a team battered to pieces, and another game scheduled for the coming week, a way to speed up the manufacture of red blood may decide the score. This innovation of light treatment in Kansas is an indication of how coaches are availing themselves of the very latest in scientific research."

One of the world's largest high schools is installing ultraviolet light. Each pupil engaged in athletics will receive daily ir-

radiation to build muscle, increase resistance to infection and aid in quick and accurate thinking."

It is estimated that \$1,500,000,000 are lost in wages each year in the United States on account of colds. Some employers are providing ultraviolet baths for all their employees simply to keep them fit and more efficient.

A few observations by Dr. Donnelly follow: He says, "Henry Ford has used ultraviolet energy nearly fifteen years, and one of his chief surgeons told me that infection in wounds had practically ceased to exist since using ultraviolet energy."

And again; "Any scar that can be reached by ultraviolet can be reduced in length, breadth and thickness, and if treatment is persisted in, the author believes it can be totally removed and replaced with normal skin." "Stitch abscesses respond quickly to second degree reactions." "Pain in and about the wound due to inflammation is quickly relieved."

"Post-operative nausea and vomiting are relieved by biologic ultraviolet energy, due to its antacid effect, since it relieves acidosis."

"Wounds should be treated daily to prevent subsequent infection, relieve pain, and insure firm healing with little or no scar." "Clinical experience proves that all fractures unite faster when they have general ultraviolet irradiations. Proper ultraviolet therapy will prevent or cure infection in compound fractures or osteomyelitis. It is better to take months of quartz therapy in saving a patient than to lose him with minutes of surgery."

"Clowes and Frisbie found that rapidly growing cancers contained much potassium and little calcium. Goldziehr shows that increasing calcium tends to lessen the virulency of the cancer and lessens the tendency to spread. Cancer cachexia, like all cachexias, shows a high elimination of mineral salts; a demineralization as revealed by the x-ray in osteoporosis. Hess and Tisdall show that ultraviolet energy increases diffusible calcium to normal."

"The surgeon can do much to aid his patients if he adds ultraviolet energy to his armamentarium."

Scientists are agreed that ultraviolet energy is responsible for the chemical changes taking place in vegetable and animal cells; they act upon the chlorophyll of plants and starch is produced. They act upon the blood in the fine mesh of skin, also on the cholesterol and sympathetic nerve terminals of the skin and beget the following results:

1. Increased oxidizing power, the hemoglobin and red corpuscles being increased.

2. Destruction of bacteria and toxins and increased immunizing power of blood. Polynuclears often increased one to three thousand.

3. Carbon dioxide rapidly eliminated and oxaluria decreased.

4. The percentage of blood urea and blood sugar lowered.

5. Acidosis and acetone bodies greatly reduced and alkalinity promoted.

6. Vitamines are activated and increased.

7. Blood calcium, phosphorus and iron percentages rise in a remarkable way.

8. Capillaries are dilated, internal congestion relieved.

9. The analgesic and sedative action is marked.

10. Both the pressor and depressor toxins are destroyed and blood pressure approaches the normal.

11. Male impotency and menstrual trouble due to disturbed ovarian secretions are improved.

12. A school boy's digestion and assimilation is developed.

I have been a student of medicine and a practitioner for the past thirty years and I do not believe any one therapeutic agent or all healing agents combined are as potent in restoring or maintaining health as the chemical rays of the sun, especially when produced in such great potency as by the quartz burner.

Doctors Mitchell and Johnson of the Nutrition Laboratory of the Battle Creek Sanatorium, say: "Ultraviolet light not only aids in healing of rickets caused by deficiency of either phosphorus or calcium but causes the assimilation and retention of these minerals."

Dr. Elliott believes that rapidly growing breast fed babies seldom escape some degree of rickets; the indoor lives of the mothers prevent the assimilation and excretion by the mammae of sufficient calcium.

The sympathetic nervous system has end organs in all parts of the skin, as well as all parts of the body. Ultraviolet baths stimulate the sympathetic nerve cells in the skin and reflexly increase all glandular activity and the general metabolism.

Dr. Brewer asserts: The following is a list of diseases in which the calcium metabolism is deficient and in which, therefore, improvement is to be expected from exposure to ultraviolet light:

Hay Fever	Tetany
Asthma	Cancer
Eczema and numerous skin diseases	Rickets
Angioneurotic edema.	Bone disease
Anaphylaxis	Fractures

Among the score or more cases I have treated in the last five months, I will speak briefly of six.

Mr. W.—a student in our State University last year, has been troubled with psoriasis for several years, had some relief from various ointments, but no permanent help. He came to my office July 7; the abdomen was covered with a mass of scaly scabs with no healthy skin, the back was nearly as bad, his shoulders were covered with a pustular acne, some of the lesions being equivalent to small boils; after five weeks of daily ultraviolet treatment his skin was clear of psoriasis and acne and has remained so, under three treatments a week.

Miss L.—who had a facial acne, came in for general ultraviolet treatment, on account of poor health and a history of family tuberculosis. She improved rapidly and her acne was entirely cleared up after ten days of daily treatment.

Mrs. H.—about 50 years old, came under our care for a bad case of rheumatism; had been in the hands of a good physician and thoroughly examined for focal infection; has been taking ultraviolet baths since July 17; her rheumatism is much improved as well as her general health.

Mrs. S.—40, has never been free from pain since breaking her ankle six years ago, had been treated at Mayos, by Dr. Ellis Jones of Los Angeles, and had several operations, was referred to me by Dr. Charvoz for diathermy and x-ray treatment of the lower left limb; in addition to said treatment she took a course of ultraviolet light and during the first month reported that she was completely relieved of her asthma.

Mrs. M.—45 years. Wassermann for some time negative, now positive; 606 and mercury therapy discontinued on account of condition of kidneys. After eight weeks of quartz light baths the Wassermann was again negative.

Mrs. R.—50 years old, was under my care 15 years ago; at that time she had an active tuberculosis and was in bed most of the time for two years. Early in July she came to my office complaining of loss of appetite and sleeplessness on account of the heat. During the past few winters she has had frequent colds, pleurisy and attacks of flu. After two months treatment with the violet ray she has gained 15 pounds, cannot get enough to eat and has slept well during the balance of the heated season.

Three weeks ago a five-year-old boy was brought to my office by his mother for

electric treatment. He gave a history of petit-mal beginning at about 14 months of age and gradually becoming more severe but never losing consciousness. He had been examined by Drs. Brown & Brown of El Paso and other high class men, and told that nothing could be done. As these attacks were more severe after eating heartily or when he had indigestion, I concluded that his attacks might be anaphylactic in character caused by certain foods. There have been reports of a number of cases of hay fever and asthma relieved by ultraviolet treatment and as the child was of a very nervous temperament I felt that ultraviolet treatments would build the boy up and have given him daily body treatments, vibrated the spinal nerves at their exit and regulated his diet to overcome constipation. The mother reports the boy much improved, spasms less frequent and lighter. It is too soon to tell whether relief will be complete.

I have observed that if you maintain a good coat of tan during the summer you will have no prickly heat and will be much more comfortable during the summer months if you remain in Phoenix.

Here are a few case reports by other writers.

Dr. J. G. Walsh reports a case of pulmonary tuberculous peritonitis in a girl of 19. She had an afternoon temperature of 101 and pulse of 110. Fractional radiation with ultraviolet light, following the scheme of the Rollier treatment improved her condition; she gained 20 pounds and her temperature and pulse returned to normal in about two months.

You must begin with much smaller doses and proceed with great caution when treating pulmonary tuberculosis, as the skin and body functions respond slowly.

Larason Brown says: "The medical Lawrason Brown says: "The medical treatment of intestinal tuberculosis is only palliative; ultraviolet irradiations and heliotherapy frequently improve the symptoms, and may even have a curative effect." When these fail he recommends roentgen therapy.

A physician 58 years old had a gangrenous ulcer under the right little toe, due to arteriosclerosis. Operation was recommended but he chose ultraviolet treatment, general and local, was able to keep at work, and the ulcer healed in a few months.

Gellett reports that ultraviolet body treatments greatly shorten Neisserian infection and especially those complicated with epididymitis.

Dr. John F. Harvey of Boston says: "A lady 34 years of age, in fairly good health, through the scalp disease, favus, lost her hair entirely. When she came to me her

head was smooth and shiny, not unlike a billiard ball. Not a chance of growing new hair could be discovered by examination. I commenced ultraviolet treatment. At the third treatment the hair had grown so thick and abundant that I ordered the scalp shaven in order to get the full benefit of the light. Her hair is of the same color as before, very thick and soft and the scalp is completely covered. It is needless to say patient is wonderfully gratified by the results. I am giving treatments weekly."

Dr. Bainbridge of the Naval Hospital in Brooklyn said at a recent clinic held at Grace Hospital, Detroit: "This form of treatment apparently cures acute sinus infections without operative interference. The intense headache is relieved; pus in the sinuses becomes thinner, thereby making drainage easier; normal ventilation of the sinus is resumed."

"Acute tonsillitis may be aborted if early action is instituted. Once established, the duration of the disease may be shortened and its severity greatly lessened."

Dr. T. B. Racy, in an article published in the *Journal of Radiology*, reports surprising benefit in relieving tinnitus aurium and restoration of hearing in catarrhal deafness as a result of ultraviolet treatments.

I believe that lack of development of the great skin gland and its internal secretions, together with its inactivity, as a result of our clothes absorbing all the violet rays that strike the body, is a great physical handicap to the Caucasian race. The effects of this hypoactivity of the pale anemic skin are most noticeable in middle life when the vitality is beginning to wane and we have the so-called degenerative diseases (circulatory, liver and kidney troubles) to deal with. Accompanying these, either as cause or effect, we have many focal infections and various toxemias which manifest themselves in rheumatism, neuralgia, indigestion, high blood pressure, nephritis, diabetes, asthma and hay fever.

We must keep in mind that protoplasm requires not only food, oxygen, water and rest, but also the chemical rays of the sun.

During school days and adult life, Americans are under cover most of the time; rarely does one have time to take several hours sun bath. Twenty to thirty minutes exposure of the nude body to a mercury vapor lamp is equivalent to from three to five hours sun bath and if taken two or three times a week will produce robust children and increase the efficiency of adults ten to twenty per cent, greatly reduce physical ailments and will add years to the life of each individual.

It seems certain that during the life time of many of us these lamps will come to be considered as much a necessity in the home as a bath tub. It is just as important to keep the blood clean as it is to keep the body clean. We will state in closing that the mercury vapor lamp is well out of the experimental stage, as, at one of the largest and most scientific tuberculosis centers in the world, Saranac Lake, New York, Dr. Edgar Mayer reports more than 600 lamps in use.

DISCUSSION

DR. O. H. BROWN: The Review of Tuberculosis recently reported a series of 100 cases of tuberculous peritonitis treated with ultraviolet lamp. Of these, 19 had not been treated long enough to warrant conclusions. Of the remaining 81, twelve did not do well, though the paper would lead you to believe that their lives were prolonged. Of the other 69, 90 per cent did very well, and half of these were clinically cured.

DR. WOODALL: While at Trudeau this summer, I saw some of this work. They are very conservative about endorsing anything at Trudeau, but Dr. Lawrason Brown showed about a dozen cases who had had positive diagnosis of intestinal tuberculosis, and each one of these was supposed to have been cured by ultraviolet rays.

DR. H. T. BAILEY: In treating sinuses, do these rays injure the lens of the eye?

DR. R. J. STROUD: How positive was the Wassermann?

DR. WILKINSON, closing: Usually have the patients wear goggles; direct light must not strike the conjunctiva as it will cause a marked conjunctivitis. Do not recall the details of the Wassermann, except that it was positive.

A REVIEW OF SCARLET FEVER RESEARCHES

As a cause of death, scarlet fever does not rank very high. Even with the use of diphtheria antitoxin, diphtheria still far outranks scarlet fever as a cause of death in children. However, the fact that we have long known the cause of diphtheria and have in our possession the antitoxin which will usually give us prompt control of the disease, when seen and diagnosed early, has imbued the profession with a

confidence in handling that disease which the statistics of deaths will not support.

The fear which scarlet fever brings into the family has been due to the fact that the profession has not been able to say that they know the cause or the pathology, and have a specific remedy for treatment; this confessed helplessness on the part of the medical profession has led the general public to have a dread of scarlet

fever. Now that we are in the same situation with regard to this disease that we are with diphtheria, knowing its definite etiology, knowing its characteristic pathology, and having a specific remedy for treatment, as well as an immunizing agent to prevent scarlet fever, this dread will disappear, though it is very likely that the death rate will not be materially lessened.

In the age group between 4 years and 9 years, scarlet fever ranks fifth in fatality, diphtheria, measles and whooping cough all being ahead of it, and yet scarlet fever is dreaded more than all of the others.

With the medical profession, it is not the mortality which makes us dread scarlet fever, but the late sequelae, such as ear, cardiac and renal injury. As will be seen later in our discussion, the new methods of treatment have not entirely removed the danger of such late sequelae.

Since we have within the past two years seen the completion of the investigations which place in the hands of the medical profession the weapon which gives us the ability to conquer scarlet fever with the same ease with which we can conquer diphtheria, it should be profitable for us to review the development of this welcome remedy.

The relationship between scarlet fever and streptococci has been suspected for thirty years. In 1895 Marmorek advocated a serum produced by injecting animals with streptococci, for treating scarlet fever. Owing to the fact, easily recognized, in this day, that these streptococci were not specific, the serum did not prove as effective as was hoped. In 1905, Aronson and Moser, working with agglutination tests, tried to demonstrate that certain strains of streptococci isolated by them were closely associated with scarlet fever, and Moser developed an anti-serum which seemed to benefit some patients. Other observers (Meyer, Salge) obtained conflicting results, because no means of isolating a specific streptococcus of scarlet fever had yet been found.

In 1904, the workers in this country began to appear in the literature. Weaver made an exhaustive report on agglutination of streptococci from cases of scarlet fever. His results were very inconstant and he concluded that agglutination was not specific. Tunncliffe calls attention to the fact that Weaver's work was done before methods of differentiating the hemolytic from the green producing streptococci were developed, and that perhaps many of his strains were viridans or even pneumococci.

Reudiger, Tunncliffe and Banks did further work in 1906-7-8 along the same line, the net result of which was to indicate by means of the opsonic index and agglutination that the streptococcus found in scarlet fever is probably a special strain.

No further progress seems to have been made for several years, at least no definite report of progress was made.

The work which finally culminated in our present mastery of scarlet fever was started by the Dicks in 1912. At that time, the profession was entirely skeptical about everything which had been said about the disease and its etiology. It was stated to be a disease of unknown etiology, with the idea prevalent that a filterable virus was responsible for the disease. Experimental scarlet fever had never been produced. A number of inconstant reactions had been developed in animals following inoculations with different materials from scarlet fever patients, but nothing resembling a typical scarlet fever.

The feature which led most clinicians to doubt the hypothesis that streptococcus was the causative agent was the well-known fact that one attack of scarlet fever conferred a lasting immunity, which was not a characteristic of streptococcus infections.

Since this point has been mentioned, it is well to digress and explain why it is that immunity is produced in scarlet fever and not in other common forms of streptococcus infection. It is because the particular strain of streptococcus causing scarlet fever produces a soluble toxin, and it is this toxin which causes the formation of an antitoxic immunity. The patient is not immune to infection by the streptococcus, even the same strain, but is immune to the toxin and the symptoms caused by the toxin.

The Dicks took up their work by re-investigating the bacteriology of the disease, utilizing newer cultural methods. They investigated the throats, urine, blood, feces, skin scales and complicating lesions in scarlet fever patients. The organisms found, of which the hemolytic streptococcus was the most frequent one, were injected into guineapigs, rabbits, dogs, mice, pigeons and young white pigs, subcutaneously, intraperitoneally and intravenously. These results were reported in 1914, the sum total of their conclusions being uncertain, so far as any particular organism was concerned.

Realizing that scarlet fever produces a high degree of immunity, they conducted a most thorough study of immune reactions, which were reported in 1916, using

the blood sera from convalescent scarlet fever patients. One step was gained by this work, the demonstration that the hemolytic streptococcus is the only organism producing immune bodies in patients with scarlet fever. This was a verification of the work of previous workers, but did not fully establish that the strept. hemolyt. is the causative agent in scarlet fever, as it might be a secondary invader as it is in influenza. It was necessary to produce experimental scarlet fever in the human being and to recover the same organism from the patient.

Apparently the war period interrupted this work. The investigations were resumed afterwards, the attempt being made to find out where in the body of the scarlet fever patient, the organism exists in the greatest abundance. The result of this was to show that the organism of scarlet fever is not present in the blood in early or uncomplicated cases, but that it is present always in abundance in the throat mucus. This was determined indirectly, by testing for the quantity of immune bodies in the blood and in throat mucus, because it had not yet been proven that the streptococcus was the cause of the disease.

In 1920, Dochez & Bliss, Tunnicliff, and Gordon of England, with improvements in technic, were able to prove that hemolytic streptococci from the throats of scarlet fever patients form a definite biologic group.

The next step was to demonstrate that the specific organism does not exist in the blood in some unrecognizable form. This was proven by inoculating human volunteers with blood from scarlet fever cases, always with negative results.

Attention was now definitely centered on the throat as the seat of invasion and the location of the essential lesions, and an exhaustive study of the bacteriology of the throat in scarlet fever was undertaken.

In 1921, the Dicks at the McCormick Institute for Infectious Diseases attempted to produce scarlet fever by swabbing suspensions of streptococci over the tonsils and pharynx of volunteers; these efforts failed.

In 1923, a nurse in charge of a scarlet fever patient developed the disease and along with it an infected finger from which a few drops of pus were expressed; from this pure cultures of hemolytic streptococci were isolated. Four day old cultures of these on sheep's blood agar tubes were used and swabbed over the throats of five volunteers. In one of these, there was red-

ness of throat, enlarged tonsils and cervical glands and fever, but no rash. In one other, there was sore throat, headache, backache, malaise, nausea and vomiting, with typical rash and clinical course of scarlet fever.

Filtered cultures were used, and the filtrate after passing through the Berkefeld filter swabbed over the tonsils of six volunteers, but with no effect. The unfiltered cultures were again tried and one case out of four developed typical scarlet fever.

From these patients the hemolytic streptococci were recovered.

Koch's postulates were thus fulfilled, and the same results have since been obtained repeatedly.

We will depart again, at this point, from the chronological history to explain the large number of negative results. It was found, when the method of determining susceptibility to scarlet fever was perfected, that only a small percentage of adults are susceptible.

Believing that this might be the case, another set of volunteers was selected, getting those who could give a comprehensive personal and family history, where no contact with scarlet fever had occurred. In this series of volunteers, there was produced the first case of scarlet fever ever caused experimentally by the inoculation of a pure culture of any organism. This was reported on October 6th, 1923.

It then became necessary to further prove whether this case was really caused by the streptococci or by some filterable virus. It was in the course of these experiments, that the Dicks discovered that the toxin of the streptococcus would produce a reaction in persons susceptible to scarlet fever. The discovery and isolation of the specific toxin of scarlet fever offered a scientific foundation for several things:

- (1) A means of identifying scarlet fever streptococci.
- (2) The development of a skin test for susceptibility.
- (3) Preventive immunization.
- (4) Production of an antitoxin.

All of these have been developed during the past two years and are now available to the profession.

Before we discuss the immunization and treatment of scarlet fever, we should have a clear understanding of the nature and clinical course of scarlet fever, based on the conceptions which have gradually developed out of the work of the past few years.

First:—Uncomplicated scarlet fever is a **toxemia** caused by the superficial infection of the throat with the streptococcus scarlatinae, without invasion of the bodily tissues by the organism.

The uncomplicated disease is self limited, the duration of the specific toxemia usually being from 4 to 7 days, though severe cases may be longer. The clinical symptoms of the **toxemia** are fever, rapid pulse, nausea and vomiting, prostration, delirium, eruption on mucous membrane and skin. During this period of toxemia, the specific toxin can be demonstrated in the blood. After recovery this toxin disappears and a demonstrable amount of antitoxin slowly appears, conferring an immunity to scarlet fever toxemia, though not to infection or invasion by the streptococcus, which is capable of producing other lesions.

Second:—There is very frequently superimposed upon the toxemia of simple scarlet fever, a local or general invasion of the body tissues by the streptococcus scarlatinae or other pyogenic organisms. This is known as the **septic** phase of scarlet fever, though it is really a complication. This septic phase is manifested clinically by such complications as purulent rhinopharyngitis and sinusitis, otitis media, ulcerative tonsillitis, cervical adenitis, meningitis, arthritis, thrombophlebitis and septicemia, nephritis, etc. Usually when patients are still sick beyond the first week, some one or more of these septic processes will be found responsible and patients are then both **toxic and septic**. The specific scarlatinal toxemia may disappear, shown by the disappearance of toxin from the blood and the fading of the rash. Not only may this happen, but antitoxin may appear in the patient's blood, even while there is still severe sepsis, and the septic process may advance in spite of the fact that the patient's blood is charged with antitoxin. This is an important point, in its bearing on specific treatment.

This condition is not a part of the scarlet fever, but is better known as post-scarlatinal sepsis.

While these points are clearly in mind, let us discuss the treatment of scarlet fever with specific antitoxin, altho the chronological order would call for a discussion of the toxin tests, first. All the sera on the market at the present time are purely antitoxic, although effort is being made by several research laboratories to introduce into this serum anti-bacterial properties. Therefore, the effect of the antitoxin specifically is entirely on neutralizing the toxin and

terminating the toxemia. This it will do promptly and efficiently, and it can be stated unequivocally that scarlatinal antitoxin in proper amount is a specific and prompt cure for uncomplicated scarlet fever, the temperature dropping to normal and all symptoms disappearing in from 12 to 36 hours.

What of the septic complications in scarlet fever? If one expects that these are going to disappear as promptly under the antitoxin, he will be disappointed. The antitoxin has no direct effect upon the ulcerative and purulent lesions produced by direct invasion of the streptococcus, nor upon the arthritis and other inflammations from the same cause. The antitoxin **indirectly** benefits these complications, by abating the toxemia and thereby releasing all the defensive forces of the body to fight the septic processes.

After the rash has faded and post-scarlatinal sepsis is established, there is no good proof that the antitoxin, as present supplied, has any material beneficial effect.

For the best effects, therefore, it is plain that the toxemia should be abated as quickly as possible, by the administration of the full dose of antitoxin at one time. This follows the best method of treating all toxemias with specific antitoxins.

The amount of antitoxin required to cure scarlet fever promptly and with certainty varies from 3000 to 12,000 units given intramuscularly. A unit is the amount of antitoxin which will neutralize 100 skin test doses of antitoxin.

Coming back now to a study of the application of the toxin in testing and in immunization.

Having secured a specific organism and isolated its toxin, the Dicks followed out the work of Schick on diphtheria, and developed the skin test for susceptibility to scarlet fever. Their first report of this was made in January, 1924. They definitely proved that this was a true toxin by cultures, inoculation experiments and the production of an antitoxin.

The sterile toxin when injected into susceptible persons is capable of producing the general malaise, nausea, vomiting, fever and rash of scarlet fever.

The toxin is prepared by inoculating plain broth with pure cultures of the scarlet fever streptococci, and incubating for four to six days. The organisms are removed by filters until the filtrate is clear and sterile. The Dicks advocate a very exact

and complicated standardization of the toxin. The toxin must be of a strength that when 1 c. c. of it is diluted to 1000 c. c. with salt solution, and test is made with .1 c. c. of this dilution, a positive reaction is produced on a susceptible person in 24 hours. If the batch of toxin when diluted 1000 times fails to produce this reaction the entire batch is discarded as no stronger dilution than this is permissible. If it produces a reaction more vigorous than the standard test solution, it is diluted down, until the two are equal.

When it is found that the toxin is of the proper strength, it is further tested against a standard in a series of at least twenty susceptible and ten immune persons. Tests on animals are not practical because animals are very slightly susceptible to scarlet fever.

The Dicks claim that the greatest possible accuracy in making and standardizing the toxin is necessary. They claim to have found commercial toxin on the market ranging from one-fourth to four times the proper strength. Also some commercial houses use horse blood to grow the cultures in and this foreign protein in the toxin produces pseudo-reactions.

It required one year of experimentation by the Dicks to determine the proper skin test dose.

For those who have worked with the Schick test in diphtheria, some remarks about the Dick test should be of interest. The toxin of scarlet fever causes less reaction than the Schick test, and if one is not careful and tries to interpret the scarlet fever test as they do the Schick test, many positive reactions will be regarded as negative. The Dick test does not produce the induration which is characteristic of the Schick reaction. It is a superficial edema, rather than an induration. It comes more quickly and must be examined and interpreted not later than 24 hours after the test is applied, whereas the Schick test can be interpreted best about the fifth day.

Figures are usually dry, but some given by Dick in a recent article are quite interesting. He took 158 nurses who gave negative reactions and placed them in charge of scarlet fever patients, with no protection whatever and not one contracted the disease. In 230 persons whose contact was less intimate, the reactions were also negative and none of these contracted scarlet fever although from the throats of 69 of these, hemolytic streptococci were cultured, these strains producing the specific toxin of scarlet fever on culture.

Zingher has done some very extensive work with the toxin susceptibility test, as well as with immunization with the toxin. In August, 1924, he reported a series of 4,570 Dick tests on all age groups, finding the greatest susceptibility between the first and second years, over 70% of the children tested at this age being positive, this shading down to 18% at 20 years and over.

The test invariably becomes negative after an attack of scarlet fever; so uniformly is this true that it is used as a test to determine whether a suspicious rash is scarlet fever or not. The Dick test is applicable for several purposes:—

(1) To determine susceptibility or immunity to scarlet fever.

(2) To determine the efficiency of immunization with scarlet fever toxin.

(3) As diagnosis in doubtful cases. A positive reaction during convalescence from a scarlatiniform rash would indicate that the disease was not scarlet fever.

(4) Detailed study of scarlet fever. One or more toxins.

(5) Studying the nature of the toxin.

(6) Standardizing the antibody content of antitoxic serums.

(7) Identifying strains of hemolytic streptococci.

(8) To determine the presence of hemolytic streptococci of scarlet fever in normal throats.

(9) Determining by type of organism whether one is dealing with a post-scarlatinal infection.

For the last three, the organism must be isolated in pure culture and its toxin secured by growth on culture media.

The second dose should be about 1500 skin test doses, and the third one perhaps 5000 skin test doses. They claim that much of the work has been done with inadequate doses.

The immunity which develops occurs more quickly than after diphtheria toxin, the immunity being evident within one or two weeks, as compared with two to four months for diphtheria toxin.

Dick reports 206 susceptible nurses, who were immunized with the toxin to the point of a negative skin reaction, and all were placed in charge of scarlet fever cases. Not one of them developed the disease. The same thing was true of 405 persons whose contact was direct though not so intimate as that of the nurses; none of these contracted the disease.

LIFE EXTENSION

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During the twenty years from 1900 to 1920 life expectancy increased nearly ten per cent¹, or a total of five years for men and women combined. The figures are even better now. This means that an infant born today has a prospect of life greater than any vouchsafed to us of middle years. If this were the whole story, it would be a happy one. But an analysis of the causes of death in our general population discloses that the gain has been greatest in the earliest years, while those in the higher age groups have not a corresponding advantage. The five leading causes of death provide the text of this paper. They are organic heart disease, chronic nephritis, cerebral hemorrhage, cancer and tuberculosis².

It is evident that the first four are diseases of later life, as a rule, and that they are not amenable to the usual control measures of the health officer; quarantine, isolation, vaccination and sanitary management of the environment are futile. Our attack must be from an entirely different direction and must employ a radically different technique. Its objectives will be to detect early symptoms to restore health when possible, and to prolong life in a measure of comfort, when nothing more can be attained. What, then, shall we do?

The answer is periodic examinations of the apparently healthy. This is no startlingly new idea to physicians, for we all admit academically that an examination of any so-called "normal" individual may reveal latent disease, but a nationally organized, conscious movement of this sort is a recent development of preventive medicine. It marks a forward step in the application of modern, scientific medicine to the betterment of the human race. A "health examination," as it has come to be called, means a complete and thoroughgoing physical examination, of every individual who will seek it, at stated intervals, preferably one year. Emphasis must be placed on the word **complete**. Such an examination would include a detailed history of the individual; a searching inquiry into his habits of living and his occupation; a physical examination that covers him from head to toe, such as we were taught in medical school but seldom apply, and routine laboratory tests together with others that may be indicated. Finally, the service is not com-

pleted without a careful pondering of the findings and worthwhile advice as to corrections needed. The American Medical Association has prepared blanks that cover these points fully and that will aid the physician in making an examination.

This is admittedly a time consuming piece of work. It cannot be rushed through in half an hour, with a reception room full of other restless patients. It will require special appointments and an unhurried atmosphere. And the logical corollary is that it will call for a reasonably large fee. Does this seem to be a fanciful proposal? It may to us who are far from the large centers of population, but it is an actuality in those places where the medical profession and the health agencies have been preaching this enlightened gospel. In fact, it has already become so popular that the quacks have taken it up; the mail order business seems to be flourishing; a sure sign that it has had favorable and extensive public approval. Many medical societies have planned definite programs of popular education and the eastern air is full of it nightly. The Metropolitan Life Insurance Company has spent many thousands of dollars to present the case through its extensive advertisements. This company is not wasting its money on chimerical schemes. It first tried out the plan on a large group of its policy holders, giving the service free, and made an actual saving, through the prolongation of life, sufficient to pay all costs of the service many fold. It now urges the nation of readers to call upon their family physicians for similar service.

Years will elapse before we can hope that any appreciable proportion of the population will accept such a new idea. But education must begin and there is no better time than the present. In fact, such education has already begun, for our school children are becoming accustomed to this very sort of thing from the health officer and nurse. Is it not reasonable to expect that they will want to continue the practice in later years? It seems that the logical agency for carrying on an educational program of this kind is the public health department, for it cannot be accused of self-seeking in the matter. National organizations, such as the Gorgas Memorial Institute, can also make this an important

part of their service. Locally, the medical societies can foster the idea through public announcements, while individual physicians can discuss it with their more intelligent clients. Gradually the notion will permeate the public mind and we may find a demand created that we are not prepared to meet.

This leads to the last point, the one that I particularly want to stress; the physician must prepare himself for this new undertaking. At first thought, it may seem an impertinence to suggest that any successful physician is not so prepared, but it is none the less a fact that very few can qualify at present. An example will serve to illustrate what I mean. Suppose that an applicant for examination is found to have pain in the foot muscles on standing or walking for some time. After eliminating systemic disease, it is obvious that "something is wrong with his arches, or his shoes do not properly fit, or—well, something is wrong with his feet." Can any physician here make such a minute examination that he can definitely place the trouble and can as definitely prescribe the proper exercises and the proper kind of shoes, so that this unhappy individual can go through the day in comfort? This may seem a trifling matter to a busy doctor, but do we realize how often just such so-called trifles lead to nervous disorders or to diminished efficiency. A subject of major importance is diet. Research work has brought this to the fore in recent years. Can we detect errors in our clients' diets and prescribe *exactly* the right foods? It is not enough to say, "Be thou clothed and fed;" it is not enough to give a perfunctory looking over and dismiss him with a slap on the back and the traditional "You're the finest specimen of a man that I have seen in a long time." We must get

down to hard digging ourselves and, when we are through, our client must feel that he has had every benefit that modern science can offer him. A county medical society could be of no greater service to its members than by conducting an intensive course of study throughout the winter, using its own members for demonstration, in order to perfect all local physicians in the art of technique of a complete physical examination. The intelligent member would find his skill measurably increased, while the drone would naturally eliminate himself and go on his unscientific and humdrum way.

There is a challenge in this new movement that the forward-looking physician cannot ignore. It is his supreme opportunity to take his rightful place in the public health movement of the future.

SUMMARY

1. The leading causes of death and debility are not amenable to present public health methods for their control.
2. A new method of attack is through the periodic examination of apparently healthy persons.
3. Objectives of such an examination are to detect early symptoms of disease; to restore health when possible, and to promote comfort and lengthen life.
4. The examination must be painstaking and complete.
5. Education of the public has commenced and will continue, leading to an increasing call for such service.
6. Preparation of physicians for this new undertaking is imperative; few are now equal to its demands.

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MEDICAL AND DENTAL OFFICERS RESERVE CORPS

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All of you who served during the great war can cite instances of errors of judgment, mistakes in assignment, and cases of downright dumbness, due to lack of training of physicians who patriotically volunteered their services. The whole history of the Medical Corps is replete with instances of surgeons of more than local, even international fame, being assigned as mess officers, expert internists serving as sanitary inspectors and general practitioners, without preliminary training, acting as orthopedic surgeons. All these errors took their toll of lives; we paid heavily for our

unpreparedness. When we look back upon the condition of the Medical Department at the beginning of the war, realizing the inadequate state of our medical defenses, what must have been the condition of the other branches of the Army. For the Medical Corps was the only branch of the Army that had a Reserve Corps.

To alleviate such a condition if we have to go to war again, the War Department is developing a reserve organization to meet any major national emergency. On the shoulders of every county medical and dental society in these United States rests

fairly and squarely the responsibility of furnishing the necessary medical and dental officers.

Enrollment in the reserve in time of peace accomplishes a very large part of the preparation for emergencies, since it immediately establishes the identity of the individuals of the profession with the military establishment, and enables proper classification and assignment to units of individuals, insuring a proper appreciation of their talents as demonstrated by civil life. Some physicians, on being asked to join the Reserve Corps, state that they will go when needed, but will not tie themselves down. They do not realize that their failure to establish identity with the Reserve Corps in time of peace causes a tremendous administrative burden when emergency occurs, in an effort to secure the appointment and assignment to duty of individuals.

Joining up with the reserves in time of peace gives the Surgeon General's office time to go over a man's record and his professional attainments, so that he may be assigned to a unit where his talents can be developed in a military way. After the military potentialities of each man are thoroughly investigated, he is assigned with others like him to some unit or organization in which he can do the best work. In this way, the delay and annoyance of forming units from unknown material are done away with. It was this lack of knowledge of the special talents of individuals and the absence of a well developed reserve, coupled with the urgent necessity for speedy mobilization and organization that was largely responsible for the relative inequalities of rank and assignment during the war. The Surgeon General, having this in mind, made a thorough study of the situation, with the adoption of the policy defined in the letter of the A. G., dated November 17, 1923. In this, the rules determining eligibility for appointment and promotion are believed to be just and fair, and provide for a smooth flow of promotion in time of peace, conducive to the development of proper distribution of officers in grade assuring efficiency in the development of organizations.

APPOINTMENT

A commission in the Reserve is not in any case to be regarded as a mere conferring of rank, but is made to fill an office in which service may be rendered. It is a very hard thing to convince some physicians that a good medical man in civil life is not necessarily a good medical officer. In the army, the duties of a medical officer are many, and may not be connected with the practice of medicine and surgery,

particularly in the higher grades where they may be entirely administrative. To sum up, the physician must have moral fitness and general professional education with the ability to adapt such knowledge to the requirements of the military service.

In making appointments, the class of duty for which appointment is desired will be given due consideration.

As you are aware, the lowest grade in the Medical and Dental Corps is first lieutenant. In the case of former officers of the world war, appointment in the Reserve Corps may be made in the highest grade held by him without examination other than physical. In the Medical, Dental, and Veterinary Reserve Corps an applicant who has had no previous military experience, on presenting satisfactory evidence of graduation and license to practice, may be commissioned as first lieutenant without examination. For appointment in a grade higher than first lieutenant in the case of an applicant who was not a commissioned officer during the world war, certain well defined requirements must be met. He must have a record of service during the war, while not in the military establishment, which contributed to the successful prosecution of the war, such as service on the Council of National Defense, long service on a draft board, examining candidates, officer in navy or allied armies or possess eminent general or special qualifications and have been barred from appointment during the world war by circumstances connected with the maintenance of public institutions, such as essential teacher, public health, or other public administrative office.

PROMOTION

Every commissioned grade in the army carries with it certain well defined responsibilities and an officer must have certain well defined qualifications to fit him for service in a certain grade. In the Medical Dental and Medical Administrative Corps, promotion may not be had before the completion of five years service. One year of this service must in every case have been in the Officers' Reserve Corps since November 11, 1918.

When an officer is eligible for promotion, he may, upon his own initiative, or upon inquiry from higher authority, signify in writing that he believes himself reasonably qualified for, and is ready to undergo, examination for promotion. It must be borne in mind that the following essentials must be considered:

1. Length of service (Obligatory).
2. Review of Record.
3. Examination by a Board of Officers.

A satisfactory record of service is all that may be required for appointment or promotion to grades up to and including major. For the grade of lieutenant colonel, there is an examination, the scope of which is laid down by the Surgeon General.

ASSIGNMENT

The term "Assignment" refers to the particular duty for which it is contemplated to use the officer in time of emergency, and for which he is to be trained in time of peace. There are three assignment groups:

1. General assignment group (G. A. G.)

These officers are selected by the War Department for special duties and activities and are not included in the jurisdiction of chiefs of branches or territorial commanders who function in time of peace.

2. Branch assignment group (B. A. G.)

Consists of officers selected by the Surgeon General for special duties.

3. Territorial assignment group (T. A. G.) Includes all officers not in two preceding groups. All officers with troops are in this category.

Each applicant can state in his application the class of duty he prefers, and the unit to which he desires to be assigned. If his qualifications are sufficient, and a vacancy exists, his choice is approved.

ACTIVE DUTY

There seems to be a great deal of misunderstanding about this phase of medicomilitary activity. Many men have the idea that the War Department takes a special delight in unceremoniously ordering them to training camp, particularly at a time when it is most inconvenient, but such is not the case. Active duty for reserve officers is of two general classes:

1. In a national emergency declared by Congress.

2. In time of peace.

However, the preference of an officer for immediate or deferred call to active duty are taken into consideration in determining, in time of peace, his assignment for duty in an emergency. In time of peace, reserve officers may be ordered to active duty, instruction or temporary duty, provided there are funds available for their payment specifically appropriated by Congress. **NO RESERVE OFFICER, HOWEVER, WILL BE PLACED ON ACTIVE DUTY IN TIME OF PEACE WITHOUT HIS CONSENT.** If funds for their payment have been appropriated, they may without their consent legally be placed on active duty for training, and instruction,

not to exceed fifteen days a year, but any reserve officer who may be called to active duty for training purposes upon whom such duty, for business or other good reasons, would work a hardship will, upon request, be exempted from such tour of active duty.

On active duty, the reserve officer receives the same pay and allowances as an officer of the regular army of the same grade and length of service, and mileage at four cents a mile coming and going. Pay status begins when he leaves and ends when he returns. For example, figuring a two weeks tour of active duty at training camp, as first lieutenant, he will receive in addition to his mileage, \$131.33, a Captain \$158, Major \$202, etc.

CORRESPONDENCE COURSES

All officers should make an earnest endeavor to make themselves proficient in the duties of their grades and moreover, should have an eye on the next grade.

In addition to his professional work the medical officer has other duties to perform of an administrative nature, and these become increasingly heavy as he ascends in grade. Post duties, records service with the medical regiment and detachments, hospitalization, sanitation, first aid instruction, and military law, are added to his professional duties.

To give the medical officer a chance of getting at least an insight into these responsibilities, the War Department has formulated a correspondence course which, through a system of questions and answers, accompanied by the necessary literature, gives the student officer training in the essentials.

This course can be obtained by written application to the Commanding General 8th Corps Area or to the Chiefs of Staff of the 90th Division, Gunter Building, San Antonio, and the 103rd Division, Kittredge Bldg., Denver, or to the Chief of Staff, Non-Divisional Group, City National Bank Bldg., San Antonio, Tex.

In closing, let me make an earnest plea to those present who are eligible for commission, to make application therefor. Let us appreciate the lessons of the great war and be prepared.

No one can tell when the next war will break out; probably, as suddenly as the world war did. Put personal convenience behind, and let love of country dictate how best you can help her in time of war, by preparing in time of peace.

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IS THERE A LESSON?

To the editor's desk there have recently come several documents which have been read with interest. One of these is the pamphlet of the American Association for Medical Progress, Inc., a national lay society organized to encourage medical research and medical science. This pamphlet is on the subject of "Smallpox" and gives the number of cases and deaths for the United States for 1924. A letter from this Association also quotes from the League of Nations Bulletin, Epidemiological Intelligence No. 9, which has the statistics on smallpox for the entire world.

This latter pamphlet gives the illuminating and disgraceful information that the United States had, in 1924, 55,538 cases of smallpox, exceeding every country in the world except British India. In all of Europe and Asiatic Russia there were only 24,067 cases. Furthermore, the figures for the United States show an increase of 85% over 1923, while "dark and ignorant" Russia showed a decrease of more than 45% from 1923 to 1924. What did it profit those 55,000 citizens of the United States to live in the most highly civilized country in the world, if that country was so ignorant or careless as to let them contract "Smallpox,—a Preventable Disease" and die?

A study of the health activities of New Mexico shows that they have compulsory vaccination of school children in that state, having a modern state health department. Arizona, still one of the most backward states in the country in health matters, weakly listened to the selfish voices of some well-meaning but ignorant people a few years ago, and repealed her com-

pulsory vaccination laws. What is the result and how do these two states compare in smallpox statistics?

New Mexico, according to the census, has a larger population than Arizona, but to stop argument on this score, we will say that they are equal in population.

In 1921 Arizona had 192 cases of smallpox and four deaths; in the same year New Mexico had 110 cases and one death. New Mexico vaccinated a little more thoroughly and Arizona went her careless way. In 1922 Arizona had 468 cases and 132 deaths, only one state in the country (Colorado) exceeding Arizona in that year in number of deaths from smallpox. New Mexico had 53 cases and one death. Conditions in New Mexico and Arizona were almost the same that year, except for compulsory vaccination in the former. In 1923 Arizona again came forward with 100 cases and 26 deaths, this time leading the entire nation in number of deaths. New Mexico had 91 cases and ten deaths. New Mexico again combed the state with a fine tooth comb and vaccinated all school children who had not been previously immunized. Arizona again closed her eyes to vital facts. In the year 1924, Arizona had 160 cases of smallpox and twenty deaths, while New Mexico almost wiped out the disease, having only thirty cases and no deaths. The Outlook for May 13, 1925, closes a scathing article on this subject with the quotation that "every case of smallpox in this country means a victory of superstition, ignorance or carelessness."

When will we pull our ostrich heads out of the sand and read the lesson spelled for us last year by 55,000 needless grave-stones?

CHARLES THOMAS McCLANE

Another pioneer physician of New Mexico has gone to his reward, in the death of Dr. Chas. T. McClane, of Roswell.

Dr. McClane was eighty years of age, having been born July 23, 1845, in Wabash County, Illinois. He graduated from the Eclectic Medical College of Cincinnati, class of 1878, and came to Roswell in May, 1900, where he has been located since, in practice with his son, Dr. James T. McClane, who survives him.

EL PASO COUNTY MEDICAL SOCIETY (September 28, 1925)

The meeting was called to order at 7:30 p. m. by Dr. John A. Hardy, President, at the University Club. There were twenty-nine members and three visitors present. This meeting was devoted entirely to clinical cases and case reports.

CLINICAL CASES

DR. W. M. BRANCH presented a case of birth injury in a child eleven years old. This child showed typical spastic gait, and a low grade of mentality.

DR. HARRY LEIGH presented a case of mild myositis ossificans in a Mexican child three years old. This condition has existed for over a year and is limited to the muscles of the shoulders, neck and arms. One year ago the child had two injections of 606, but showed no improvement and has gradually gotten worse, and movements more limited.

Dr. Leigh also presented two cases of phlyctenular conjunctivitis. The first case, the child was four years old and totally blind for weeks at a time, with marked photophobia, and marked scarring of cornea. Wassermann negative; showed a very sensitive reaction to tuberculin, and improved on tuberculin treatment.

The second case has existed for two years, and when first seen, had thirty discharging tuberculous sinuses; also tuberculous otitis. This child was also treated with tuberculin and cod-liver oil, and gained fourteen pounds in ten months. The cornea showed typical scarring. Dr. Leigh says these cases do well out of doors when the eyes are improved sufficiently to stand the light.

DR. F. P. MILLER showed a case of thoracoplasty in a man 39 years of age. This had been done in a several stage operation, and apparently excellent results obtained. Discussion by Drs. Ramey and Scott. (See elsewhere this issue.)

CASE REPORTS

DR. R. L. RAMEY reported a case of gunshot wound of the spinal canal in a negro man 39 years of age. When seen 24 hours after the injury, there was total paralysis of the right leg and bladder. X-ray picture showed the bullet located in the lamina of the second lumbar vertebra. The bullet entered on the left side, destroying the lamina and lodging against the lamina on opposite side and pressing on cord. Immediate operation was done, and bullet was removed, at which time the spinal fluid flowed out freely. On the second day after operation, patient could use the quadriceps muscles; on third day there was bladder control; on fourth day he could use all the muscles of the leg, and on sixth day after operation he was able to use the entire leg. Discussion by Drs. Vance and Strong.

DR. JAMES VANCE reported a case of a twenty-two months old child who had been struck by an

automobile and knocked sixty feet, according to the statement of his father. There was fracture of the upper maxilla; severe contusion on right side of the head; unconscious; respiration 60; pulse too rapid to count; shock. The next morning, respiration 60, pulse 150, body warm, and temperature 103 degrees. The child had two convulsions. The third day was semi-conscious and took a little nourishment. The fourth day convulsions and paralysis of leg and arm. A decompression operation was done under local anesthesia, the dura was opened and about six ounces of fluid escaped, and brain immediately began to pulsate. There were no clots from the motor area. A rubber tissue drain was inserted under the dura and wound closed. The day after the operation child began to move the limbs, and seventy-two hours after operation paralysis almost entirely disappeared.

Dr. Vance also reported a case of carcinoma of the third, fourth and fifth lumbar vertebra. The patient, a woman of forty years of age, married, and no children. She said she had noticed a hard lump in her breast since she was 14 years old. Last winter, while cranking a Ford, she noticed a pain in the lumbar region. The pain increased gradually until three months later she was confined to bed. There was almost board-like rigidity of the muscles. There were no neurological symptoms, blood normal. Wassermann negative. The uterus retroflexed, fixed and adherent to the intestines. The right breast had four fibrous nodules. At operation uterus was freed and suspended, breast removed and pathological diagnosis of fibrous mastitis was made. The patient did well about ten days after operation but complained of pain in back. The x-ray picture was made which showed the body of the fourth lumbar almost entirely destroyed, and beginning invasion of the third and fifth. There was no tumor mass present on the spine nor could any irregularity be felt of the spine at operation. Dr. Vance says that the majority of these cases usually follow carcinoma of the breast. Discussed by Drs. Turner, Casellas, Ramey and Miller.

DR. F. P. MILLER reported a case of head injury in a boy who had fallen from a truck. He was unconscious, vomiting, and seven hours later developed paralysis of one side. Decompression operation was done and dura opened. There was no clot present. A small rubber tissue drain was inserted and wound closed. The boy left the hospital on the tenth day and had recovered except for a slight dragging of his leg.

DRS. LEE AND WAITE reported a case of tuberculosis of the spleen in a child three years of age.

DR. JOHN A. HARDY reported a case of gunshot wound of the neck in which the bullet had partially severed the cord between the fifth and sixth cervical vertebra. (See this issue, elsewhere.)

Meeting adjourned.

H. H. VARNER, Secretary.

EL PASO COUNTY MEDICAL SOCIETY (October 5, 1925)

The meeting was called to order at 7:30 p. m. by Dr. John A. Hardy, President, at the University Club. There were fourteen members present.

Dr. E. J. Cummins, Secretary of Staff of Masonic Hospital, invited the society to be present at staff meeting at 8:00 p. m., October 6, 1925. Cases for discussion to be head injuries, including apoplexy.

DR. HARRY LEIGH reported a case of acute appendicitis, ruptured, with abscess, in child twenty-two months old. The child was seen a week before with convulsions and high temperature. At



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this time the urine contained a large quantity of pus, and there was no muscular rigidity present, and diagnosis was made of pyelonephritis. The mother says the child had complained of its side hurting on several occasions during the summer and when the child was seen on the second occasion diagnosis of appendicitis was made.

DR. J. A. HARDY reported a case of appendicitis in a child twelve years of age.

DR. E. D. STRONG reported three cases of burns, enveloping from one-third to one-half of body surface. All of these were gasoline burns and had inhaled fumes, and all died within twenty-four hours.

DR. LEIGH reported a case of burns in a child enveloping about one-third of the body. This child had been treated with unguentine during the hot summer months, and post mortem showed typical findings of phenol poisoning.

DR. E. J. CUMMINS reported a case of cerebral hemorrhage in a baby following normal, but prolonged labor. Convulsions appeared the third day and were repeated the next two days. The temperature went to 104.4 degrees, baby nursed poorly and cried a great deal. The twitchings and convulsions were more marked on left arm and leg and right side of head. The spinal canal was tapped on three occasions and the baby made an uneventful recovery.

DR. COX, of the U. S. P. H. S., is making a survey of the amount of opiates consumed per capita in several cities of the United States, and this survey is being carried out under the League of Nations for the purpose of controlling the production of opium. Dr. Cox has been studying the situation in El Paso for the past ten days and says that in spite of the reports that have gotten out to various magazines relative to the use of opiates by school children in El Paso, he is unable to find that there is anything to substantiate these reports. He says there are about five hundred Mexican boys of school age in the city who are smoking marijuana, but the amount of opiates per capita for El Paso shows a very small amount in comparison with other cities.

There was no further business and meeting adjourned.

H. H. VARNER, Secretary.

EL PASO COUNTY MEDICAL SOCIETY

(October 12, 1925)

Meeting was called to order by Dr. John A. Hardy at 7:30 p. m., at University Club. There were twenty-three members and two visitors present.

Dr. E. C. Prentiss read a paper on the "Use of the English Language in Medicine." Discussion by Drs. Homan, Haig and Waite.

Dr. Barnes read a paper on "Goiter from a Medical Standpoint."

Discussed by Drs. Werley, Waite and Miller.

E. J. CUMMINS,

Secretary Pro-tem.

EL PASO COUNTY MEDICAL SOCIETY

(October 19, 1925)

The meeting was called to order by Dr. John A. Hardy at 7:30 p. m., at University Club. There were twenty-four members and five visitors present.

The Secretary read a letter from Dr. Homan Taylor, Secretary of State Medical Association, requesting the cooperation of the Society in its attendance of the meeting of the Southern Medical Association in Dallas. Drs. Davis, Anderson and Wilson were appointed to serve on this committee by the president.

Dr. W. R. Jamieson read a paper on the Medical and Dental Officers Reserve Corps. Dr. Jamieson brought out very forcefully the importance of the organization and why all eligible physicians should be members. Dr. Jamieson reports that a

very large per cent of the physicians in El Paso are members of the Medical Officers Reserve Corps. Paper discussed by Drs. Turner, McCamant, Strong and Laws. Colonel M. A. W. Shockley, Commanding Officer of the Wm. Beaumont Hospital, discussed very thoroughly the duties of the reserve officers on active duty, and also the varied opportunities for the officers of the regular army medical corps.

Drs. Waite and Laws made some reports in reference to the coming meeting of the Southwestern Medical and Surgical Association. Dr. E. D. Strong, Chairman of the Legislative Committee, made a report stating that they were without funds and unable to carry on the duties of their committee.

Meeting adjourned.

H. H. VARNER,
Secretary.

MARICOPA COUNTY MEDICAL SOCIETY (October 17th)

The regular semi-monthly meeting of the Maricopa County Medical Society was held in the lecture room of the Sisters' Hospital on October 17th. Dr. Harry J. Felch, vice-president presided.

Dr. Frank J. Milloy presented a resume of the most interesting and instructive things he saw while at the Mayo Clinic recently.

He was struck with the attitude taken with regard to gastro-enterostomy, that it was an operation which could be undone very easily if it did not prove effective. He saw several such which were being closed on account of gastro-jejunal ulcer.

He was also impressed by the large number of thyroid cases, practically all of which were being treated surgically.

He thinks that Dr. Rowntree is doing the best medical work which he saw, and that the work of Dr. Bowing with radium in uterine cancer is the most dramatic in its results of anything in the Clinic.

Dr. Watkins presented a review of the advances in scarlet fever. This review is published in this issue of *SOUTHWESTERN MEDICINE*.

There was some discussion, at the close of the evening with regard to the November meetings.

Adjournment at 9:30 p. m.

THE YAVAPAI COUNTY MEDICAL SOCIETY (October 14th)

The meeting of the Yavapai County Medical Society with the officers at Whipple, held on Wednesday, October 14th, at Whipple was well attended, 24 doctors being present and each group having out 100% of its available membership. Groups I and III presented the cases and group II acted as judges. A slight modification of the rating system was tried out by the "Judges"—each "Judge" as a member discussed the case, rated him on his presentation, then after Cabot's discussion of both cases the "Judges" retired and discussed the work of each group, gave an individual rating on each doctor, totalled them, "struck his average" for the group and presented it in a "secret" ballot. It is believed that this method will result in a more accurate rating and that the results will be more satisfactory. The discussions were logically presented and one could not hear them without having his professional vision broadened.

Dr. Carhart, pathologist, at Whipple, presented a most interesting specimen of aneurism of the arch of the aorta with a secondary aneurism of the thoracic aorta and syphilitic aortitis. This case had been diagnosed by x-ray but not found on physical examination, death being due to pulmonary hemorrhage, the case one of advanced pulmonary tuberculosis.



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ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING

(October 1st, 1925)

The first monthly meeting of the Staff of St. Joseph's Hospital, for the season, was held on October 10th, with twenty-seven members and three visitors present, as follows:

Doctors Wylie (chairman), Wilkinson, Bailey, Brockway, Felch, E. H. Brown, Gudgel, Thayer, Howland, Couch, Shelley, Drane, McIntyre, Purcell, Smith, Eaton, Milloy, Randolph, Tuthill, Schwartz, Sharpe, Holmes, McCall, Bloomhardt, Mills, Vivian, Watkins (secretary); Dr. T. E. Schwarz of the Veterans' Bureau, Sisters Berkman and Concilia.

CASE I.

Mrs. S., age 21, primipara, entered hospital Aug. 23rd.

P. H.: Stage of pregnancy not stated. One week prior to admission patient was taken suddenly sick with edema of hands and feet and complaining of dimness of vision. This condition has persisted.

Treatment on admission: Hot bath for five minutes every six hours, 115°F. Enema of 5% sodium bicarb. solution every six hours. By mouth, soda water (drachm to the pint) until the urine is markedly alkaline; then plain water. Chart 24 hour output of urine and intake of fluid. Salt free diet. Have 24 hour urine specimen examined. Nourishment every two hours, milk, cereal, junket, toast, crackers, fruit juices.

Blood: whites 10,800, 84% polys. Hbg 70; reds 3,880,000, B. P. 180/110.

Urine on entrance:—.04% albumen, alkaline in reaction.

Urine 8/24.—1300 c. c., 1012 sp. gr.; t. s., 36.34, alb. .08%, urea 1.2%.

Patient improved under treatment; edema disappeared and vision cleared up, output of urine increased.

Urine 8/25.—2300 c. c., alkaline, t. s. 37.51 gms. albumen .1%, urea .4%, no casts, pus or blood.

Urine 8/26.—1450 c. c., sp. gr. 1009, t. s. 30.40 gms. Albumen .13%, urea .5%, no casts.

Patient's condition was worse on the 26th (symptoms not stated). On this date blood chemical report showed urea 32 mgm, creatinin 1.9 mgm., nitrogen 33 mgm. Nurse's record states there was severe headache and failing vision.

Consultation was held and Cæsarian section decided upon.

Operative chart states pregnancy at 8th month with threatened eclampsia to be the pre-operative diagnosis.

Cæsarian section under novocaine, female child weighing 5 lbs. 4 ozs. being delivered.

DR. CLIFFORD HOWLAND:—Saw this patient on Aug. 18th. Blood pressure was 180/110. Urine showed albumen with hyaline and granular casts, red and white blood cells. Fetal heart was 140 per minute. On night of Aug. 21st began to vomit. Soda water was given until she was taking ounce or two of bicarbonate of soda at a dose. Blood pressure staid up and on the 22nd she complained of disturbance of vision. Came to hospital on the 23rd. She was not passing sufficient urine and was given diuretin, digitalis and camphor, with hot baths and enteroclysis. Her edema disappeared, vision cleared and pressure dropped to 140/100. She continued to improve until the 25th, when the B. P. rose to 200/110 and she again complained of disturbance of vision. The other findings and the operation are given in the history. Mother and child did well. Vision had not entirely cleared up to time of discharge. After leaving the hospital, urine still showed albumen (.04%) but no casts. Vision has markedly cleared, but there is a question whether she will ever be normal, because she still has an albuminuric retinitis with retinal hemorrhages, seen with the

ophthalmoscope. She is up and around the house and says she is getting better all the time.

DR. WYLIE:—To what do you ascribe the suppression of urine for 24 hours?

Answer:—Do not know exactly. The output had been small anyway all through, until she was given forced fluids and diuretics. She had morphine and atropine before operation, but whether that could have caused the suppression is a question.

DR. HOLMES:—What is the prognosis in regard to the kidney condition?

Answer:—We cannot tell. Think the kidneys will clear up. For almost a month she has had no casts and only a small amount of albumen. What the ultimate result will be is a question.

DR. EATON asked permission to present an interesting case not on the program.

History:—Mrs. S. Trouble began 13 months prior to last April. Was nine months pregnant, had severe eclampsia and Cæsarian. When baby was 13 months old, patient had dull pain in the left abdomen. She was rather stout and when examined, there was a little inequality in the two sides. She had temperature at that time, irregular in type, 101 to 102. We thought she might have malaria with enlarged spleen as she had come from a malarial district. Quinine had no effect on the temperature or the mass. The mass grew rapidly until there was no argument about there being a tumor, the only question being where it was and what was involved. X-ray showed very definite tumor crowding the stomach up and the descending colon forward; it was evidently

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located posterior to descending colon but did not seem to be attached to kidney. Exploratory laparotomy was performed, revealing hard tumor mass posterior to peritoneum which was diagnosed sarcoma and patient sewed up. Tumor was on left of vertebral column, extending up to diaphragm and down to brim of the pelvis. Could not determine whether it was attached to kidney or not.

Subsequently she was radiated with high voltage x-ray on the coast, and was sent home with instructions to have another series of x-ray treatments six weeks after the first one. Dr. Bannister had a patient with erysipelas and we decided to inoculate this patient with erysipelas (for its effect on sarcoma sometimes observed). We took pus from the nose of the erysipelas patient and rubbed it on this patient's face and into her nose. She developed regular erysipelas within 24 hours; she ran a typical course, with definite rash on face, scalp and neck. She recovered and still the tumor grew. In the meantime she developed metastasis in the ilium with painful nerve points. I insisted on x-ray to check the nerve pain and this was given rather thoroughly. About a month ago, the fever became septic and about ten days ago very decidedly so, with constant diarrhea, temperature of 104, chills, sweats. I thought could detect some fluctuation in the tumor and it was opened and drained. This apparently connected through to the abdominal tumor, because that was much reduced after this drainage. The ilium is perhaps twice as thick as on the other side. The question is whether the x-ray has caused the tumor to break down. The temperature is now normal, diarrhea has stopped, chills have stopped. Still think there is a sarcoma, but what is happening to it.

DR. WATKINS:—Do not think the development of suppuration or pus like material rules out sarcoma. Recall one case from Bisbee which was treated as tuberculosis of the hip for some time, it broke down and was opened by a competent surgeon who soon saw that the tissue was new-growth and not tuberculosis; took a section and it proved to be sarcoma. We are not at all hopeful about the results of radiation in sarcoma, although we sometimes see some encouraging results even in bone sarcoma. Have one case which has been so diagnosed by competent men, of lesion in upper humerus; this has been held stationary for more than two years. Another more recent case involving scapula had caused the patient to stop all work; no hope was offered him by surgeons or radiologists; we have treated him for possible relief of pain. Tumor has not grown for a year or more and patient has resumed his work as a newspaper editor. Both of these cases were treated very intensively, to the second degree skin reaction. When a lesion is actually cured by radiation, we rather doubt its being a real sarcoma.

DR. MILLS:—The direct smears of this pus did not show any bacterial forms.

QUESTION:—Was pneumoperitoneum done?

Answer:—No. Section was not taken, because growth was retroperitoneal and thought best to keep it so.

DR. SHARPE:—Saw inoculation of erysipelas tried in 1920 in a boy with shoulder sarcoma.

CASE II.

Mrs. H., married, age 29, admitted Sept. 10th.

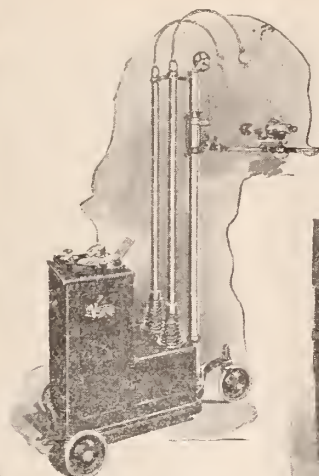
F. H.:—Husband living and well, one child age 9; patient is tuberculous.

Complaint:—Two weeks before entering, patient became troubled with severe pains in the spine and back of the head, and her right arm became stiff. She also had a high fever.

Phys. Exam.:—Temp, 99.6, pulse 100, resp. 23, B. P. 110/92. Well nourished young woman with expression of pain. Pupils equal and respond to light and accommodation readily. No abnormal



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—James Harvey Robinson in "The Humanizing of Knowledge"

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(A-239-B)

findings about the head, hearing acute. Slight rigidity of neck. Tenderness on posterior aspect of skull to attachment of trapezius muscle on each side. No thyroid enlargement. Tonsils small and pale. Lungs show a few subcrepitant rales throughout both lobes. Percussion over right apex gives a dull note. Apex beat seen and felt in 4th interspace 12 cm. from midsternal line. No friction rubs, murmur or thrills. Abdomen, bones, joints and glands negative. No g. u. exam. made. Reflexes equal and active.

Urine, clear, 1024, acid, neg. for alb. and sugar. White count 9,200, reds 4,150,000, polys 67%.

On Sept. 11th, there was marked paralysis of right arm. On 13th pain was less severe, but paralysis had remained unchanged.

Patient's temperature did not run over 99 in hospital, and she was discharged on the 17th, with paralysis still present in arm.

DR. HOWLAND:—Do not believe this was anterior poliomyelitis, for several reasons. One of the most important aids in diagnosis is not mentioned, if it was done, and that is the spinal fluid findings. In poliomyelitis the cell count is increased, the cells being large mononuclears, the globulin will be slightly increased and the sugar content normal. There is usually a leucocytosis, sometimes as high as 30,000, average about 18,000, which this patient did not have. Does not state whether this paralysis was flaccid or spastic (physician stated it was spastic). The only form of poliomyelitis where we have spastic paralysis is the cerebral form which is not common.

The temperature is not of much importance in poliomyelitis. A child may have slight temperature, with vomiting and diarrhea and two or three days later have paralysis affecting certain groups, or even complete paralysis. The paralysis in the case cited evidently occurred a number of weeks after she was taken sick, while it usually occurs by the third or fourth day. It is stated that the reflexes were equal and active. In poliomyelitis the patellar reflexes may be increased before the paralytic stage but after this they are decreased.

In general, poliomyelitis occurs in three forms. (1) Abortive, with digestive disturbance, vomiting, diarrhea, but no paralysis; there is hyperesthesia, child crying out in pain. The spinal fluid will have the findings mentioned. (2) The cerebral form is hard to distinguish from cerebro-spinal meningitis by symptoms, but the spinal fluid will differentiate. (3) Bulbar-spinal form with paralyses. In the 1915 epidemic in New York City, saw 1500 cases and never saw a case with the respiratory center involved which recovered. Have seen two cases in Phoenix, one in consultation, with respiratory center involvement and both died.

Disease is said by some workers to be caused by a specific organism, a very small ovoid coccus, smaller than any other known coccus, staining a pale violet with Giemsa's stain. Organism is found in the nasal mucous membrane of the pharynx and occasionally in the tonsils. Flexner and Park have transmitted the disease from monkey to monkey by inoculation.

Poliomyelitis usually affects children but in the New York epidemic, twenty percent of the cases were in adults. There is no way of telling what the outcome of the paralysis will be. You may have a certain muscle group only involved and the child never get well; another child may have involvement of both legs and get entirely well. First case in Phoenix had paralysis of the right leg and is now perfectly well.

As to treatment, the only remedy, outside of general hygienic measures and orthopedic and physiotherapeutic measures, has been the use of serum from recovered cases.

QUESTION:—How would you make the diagno-

sis before paralysis? Answer: You see a child with gastro-intestinal symptoms, fecal vomiting, diarrhea; child is dull; on moving him he cries with pain from hyperesthesia. You would be justified in doing a spinal puncture which would indicate the diagnosis.

QUESTION:—Would you find anything in the spinal fluid in such early cases? Ans.: You would find increased cell count, probably to 60 cells, with mononuclears, and increased globulin.

DR. MILLOY:—While at Mayos, asked Dr. Rose now about his serum for poliomyelitis. He stated that Lilly was making it, and that if any doctor had difficulty in securing the serum, it could be gotten from Mayos.

DR. HOWLAND:—There is a question about the human serum being of value and have not heard of any other serum being effective.

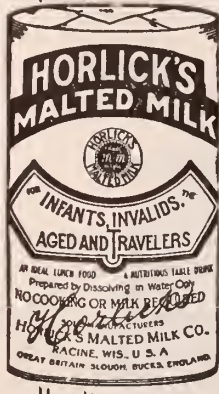
DR. EATON:—Believe the organism which Flexner claims to have discovered is the same one that Nuzum worked with some years ago, and do not believe that either one has been definitely proven to be the cause of poliomyelitis.

DR. VIVIAN:—This was my case and I did not know what else to call it, although realizing that the symptoms were very atypical for poliomyelitis.

DR. HOWLAND:—There is one point in regard to the white count; that is the possibility that the tuberculosis may have kept the count down. Would require definite proof that a spastic paralysis is poliomyelitis, as it would be very uncommon.

DR. HOLMES:—With these rales in the chest would have to think of a tuberculosis, and it is conceivable that it might be localized and given her this spastic paralysis. Such tuberculous lesions are frequently diagnosed tumor.

DR. SCHWARTZ:—She asked whether hair dye could cause the symptoms. She said that when-



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PLANTS WHICH CAUSE HAYFEVER

UNDER the above title a new monograph—amply illustrated—has just been released from the press. The urge to prepare the booklet came directly from the physician himself who submitted first one question and then another and wrote from this or that section of the country and at all seasons. Therefore, in attempting to prepare a collective answer or rather a collection of answers, we were obliged to consider the sectional as well as the seasonal requirements throughout the land.

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ever she used hair dye she was sick for several days, and I am wondering whether the dye might not have caused the symptoms.

DR. VIVIAN:—That dye was very strong with some drug, but do not see how it could cause her temperature of 102.

CASE III.

Mrs. P., age 38, married 15 yrs. multip. entered Aug. 29th. Has 3 children, has had 3 miscarriages and one tubular pregnancy which was operated; has had nausea and vomiting throughout pregnancy and headache once a month, constipated the last month; edema last 3 or 4 days.

Urine and blood counts normal.

Normal delivery, without hemorrhage or laceration, using some chloroform, on Aug. 29th.

Baby showed blood in first stool, this increasing with each stool. Hemostatic serum was given, gtt. v every 4 hrs. was given during three days, by which time the bleeding had ceased. Improved for two days; then refused nourishment, became cyanotic at intervals with poor respiration. This condition gradually improved and on discharge Sept. 9th, was taking without emesis 1½ ozs. of cow's milk from bottle every three hours.

DR. BROCKWAY:—The important part of this treatment is not recorded, for some reason. The baby was first given mother's blood. For the first two or three days, this was given in 10 c. c. doses subcutaneously and then the hemostatic serum for several days. We thought the condition was due to intestinal hemorrhage; still the baby was cyanotic which did not go with hemorrhage. When the cyanosis developed, we returned to the use of the mother's blood, and after two or three days refusal to take nourishment even with medicine dropper, began to take a small amount and then to move about a little and gradually came out. Child was to be circumcised, but was not. Five or six days ago was called to strip back the prepuc; I hesitated a little, then separated the foreskin with probe and pulled it back. There was a little bleeding which promptly stopped and child is now robust.

In these cases, the coagulation time is very variable; is not uniformly delayed; we did not test it in this case. The mother's whole blood was given because it was easily available. Did not transfuse because the child was not in extremis. The whole blood was injected subcutaneously.

Question:—Why use the mother's blood?

Answer:—Why use any other? She was right there handy. Have used this a number of times. Have never seen a fatal case of this sort.

Question:—Do you see many such cases where you do not use any of these serums? Answer: Yes, they are not uncommon.

DR. VIVIAN: Recall a case of bleeding into the spinal canal, where the father's blood was injected into the fontanel. The father's blood can be used without typing. Saw another case with Dr. Charvoz of intracranial hemorrhage which was checked with normal horse serum.

CASE IV.

First entrance to hospital Feb. 26th, 1925. Premature infant, born outside of hospital at 7th month of gestation. Weighed 2 lbs. 14 ozs. Fed on Eagle brand milk, with warm olive oil sponges. Baby ate, and had normal bowel movements. Mother's milk was added March 2nd, and placed to breast March 7th. Gradually gained weight and was discharged April 13th, weighing 3 lbs. 6 ounces.

Second entrance Sept. 19th. At time of birth was marked with a purple spot about the size of a silver dollar on the right back. This has gradually become larger, more raised and shows a distinct tendency to infiltrate. Recently it became

ulcerated on the surface and infected. Infection was cleared up with mercurochrome. Baby is now six months old, well nourished and apparently healthy. Lesion is evidently painful.

Diagnosis of angio-sarcoma was made, and destruction of the growth by radium was decided on.

DR. MILLOY:—The only interesting part of this case was the treatment by radium which Dr. Watkins will describe. The baby was premature. When it was about six months old, mother brought it in and showed me the birth mark which she said was present at birth. It was oblong, about two inches long and an inch wide, raised about the thickness of a silver dollar. Brought the baby in because the lesion was breaking down, with a pussy discharge from the broken down area, and once or twice it had started to bleed. Area continued to enlarge; was treated with ammoniated mercury and later with mercurochrome.

DR. WATKINS:—When first seen it was rather uncertain whether the induration was inflammatory or invasion of newgrowth. After watching it for a week or two and seeing the infection clear up with mercurochrome, but the invasion at the margin continue, diagnosis of angiosarcoma was made. We preferred to treat it on diagnosis from gross appearance. Do not fancy cutting into the margin of an angiosarcoma to secure section.

Tumor was divided off into four areas and to each of these 1500 milligram-hours of unfiltered radium was given. This is a destructive dose of radium and we expected breaking down and ulceration of the entire growth area. This has occurred and we hoped to show patient tonight, but mother is sick and could not bring the baby. We used radium in preference to electro-coagulation, as it could be applied without anesthesia. We think the local lesion is destroyed, and the ultimate outcome will depend on whether there are metastases. The radium ulceration is painful just now, but since it is confined to the newgrowth, we hope it will soon heal over.

CASE V.

The secretary discussed a record of esophageal carcinoma, in which gastrostomy was done for temporary relief, and showed x-ray films of another similar case now under treatment in the hospital. Both are cases of Dr. Sweek. The clinical record was shown as one which was admirably kept. The chief point illustrated was the filing with the hospital of the records obtained on the patient before he entered the hospital, such as x-ray and laboratory findings. It was recalled that usually the findings on which diagnosis is based are secured outside of the hospital. Several of the staff members make it a practice to furnish the hospital with transcript of these examinations, but this is not the general rule, and the staff members were asked to do this, whenever possible in the future.

Dr. Watkins stated that these two cases well illustrated the points recently made by Dr. Chevalier Jackson in a paper, in which he stated that the symptoms of early involvement of the esophagus in cancer were trivial and practically always dismissed by the physician as of no moment. Such symptoms appear in the histories of both these patients, one two years back and one 18 months back, such as slight discomfort in swallowing. It is only at the time when the symptoms are very slight that any hope of cure is possible, and unless diagnosis is then made, either by x-ray or by esophagoscope while the lesion is still confined to the lumen of the esophagus, the case will be hopeless. If the physician waits until there is pain or obstruction complained of, the case is then beyond hope of anything except palliative relief.

The meeting adjourned at 9:55 p. m.

The Dietetic Value of Gelatine Receives High Recognition

The edition (6th) of "Diet in Health and Disease" by Dr. Julius Friedenwald and Dr. John Ruhrah, published by W. B. Saunders Company, Philadelphia, contains the following tribute to the value of Gelatine in feeding infants and children.

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ARIZONA DEACONESS HOSPITAL (Phoenix) STAFF

(Annual Meeting, October 24th)

The Medical and Surgical Staff of the Arizona Deaconess Hospital had the regular annual meeting on the evening of October 24th, at the Hospital. The staff members were invited to dinner at the hospital. About thirty members sat down to a banquet that was most satisfying in every way. After dinner, the members adjourned to the Board Room where the regular order of business was taken up. Those present were: Drs. Smith, Watkins, Tuthill, Chas. B. Palmer, McIntyre, E. H. Brown, Mills, Randolph, Jordon, Schwartz, Wilkinson, Thomas, Greer, Garrison, Thayer, Drane, Purcell, Couch, Holmes, Felch, Couch, Fattbert, Hicks, Vivian, Stroud, Goodrich, O. H. Brown and Mr. Sexson, manager of the hospital. The meeting was called to order by Dr. Geo. E. Goodrich, chairman.

Under reports of committees and officers, the chairman gave the following report of the work of the hospital within the past year:

Average Hospital days per patient.....	10
Number of patients, May 1923 to May 1924.....	1027
Number of patients, 1924-1925.....	1817
Increase	72%

Medical	285
Surgical	344
Obstetrical	422
Eye, Ear, Nose, Throat	242
Gyneological	154
Infectious	114
Urological	73
Tubercular	62
Others	121

Number Charity Patients	29
Number Semi-Charity Patients	386

In the last figures are the patients from the county and Social Service Center.

Money spent for Charity Patients.....\$11,755
Physical Improvements:—

1. Changed wards to eight private rooms and equipped them.
2. Two scrub-up sinks for surgery purchased.
3. Equipped cystoscopic room.
4. Installed modern emergency lighting system.
5. Installed heating plant in nurses' home.
6. Enlarged and equipped faculty house at expense of \$7,000.00.

The next order of business was the election of officers. The nomination and election were both by ballot. On the first ballot for chairman, Drs. Thomas, Goodrich, Smith, Tuthill, were the four highest. These four were voted upon, Dr. Thomas receiving the majority. It was moved by Dr. Tuthill, seconded by Dr. Felch that the secretary cast the unanimous vote of the staff for Dr. Thomas as chairman of the staff. Carried unanimously. On the ballot for secretary, Drs. Goss and Brown were the two highest and these two were voted upon, Dr. Brown receiving the majority.

Under the head of new business, the following amendment to the by-laws was read: It is recommended that line one of Article Six of the Constitution be amended by adding after the word monthly, "except during June, July, August and September."

Dr. Smith was called upon to read a letter from a former patient of his. This letter indicates that loud, checked golf stockings, excessive palaver, rough handling of patients, ordinary street brawls with dying patients, general lack of sympathy, ability to overcharge and all around general cussedness are a few of the accomplishments of a certain doctor in a certain section of the United States, in the opinion of this patient and his wife.

Dr. Smith said there were two morals to be drawn from the letter, which the hearers could find for themselves.

The records committee, Dr. Watkins, chairman, reported upon the records of deaths in the hospital since our last staff meeting as follows:

Case 4305—married woman, age 46, entered May 3rd, died June 25th. Diagnosis, chronic arthritis of long standing. Died in coma; there must have been some immediate cause of death. This was not given.

Case 4284:—married woman, age 67, entered June 20th, dying within 24 hours. Pneumococcic meningitis, which was proven by spinal fluid examination, was the diagnosis.

Case 4241:—Boy, age 15, entered June 10, died June 12. Meningitis of unknown etiology. Very good record; symptoms were those of meningitis, but repeated spinal fluid examinations failed to find organism. G. P. inoculation was negative.

Case 4230:—10 mos. old baby, entered June 6, died June 10. diagnosis of marasmus and anhydremia.

Case 4200:—married woman, age 54. Entered June 2, had a cholecystectomy. Died June 5, with diagnosis of gallstones and adhesions about gall bladder and intestines. Clinical record would indicate surgical shock as the cause of death.

Case 4192:—girl, age 13, entered June 2, died June 3. Diagnosis was myocarditis. Recorded physical findings would indicate advanced valvular disease, probably endocarditis, rather than myocarditis.

Case 4337:—man age 65, entered Feb. 2, 1925, died July 3rd. Diagnosis of asthma and myocardial degeneration; seems reasonable from the clinical record.

Case 4342:—married woman age 31(entered July 2, died July 3rd. Diagnosis of chronic nephritis

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with acute exacerbation. Clinical record would bear this out.

Case 4422:—married woman age 26, entered May 22, died July 20. Appendix was removed on admission; pathological examination showing sub-acute appearance. Infection followed and wound drained for a long time, with septic infection following operation for appendicitis.

Case 4404:—man age 32, entered July 10, died July 15. Had perinephritic abscess which was opened and drained. Patient continued to go down and probably had a terminal sepsis.

Case 4402:—married man age 37, entered July 12, with ruptured appendix and was operated. Died with general peritonitis July 14; this should be on record but is not.

Case 4397:—man, entered July 13, died next day. Diagnosis summary says edema of lungs, cardiac insufficiency and hyperpyrexia. Over in the progress sheet note is made that patient is tuberculous. It would seem that a proper arrangement of lesions would be tuberculosis first as underlying the other terminal illnesses even if there is a cardiac lesion. Hyperpyrexia is not a diagnosis, and there must have been some lesion back of that.

Case 4388:—man age 52, entered June 9, died July 26, cardiac asthma and syphilis being diagnoses. We have been told that there is no cardiac asthma without valvular heart disease or myocarditis. If there is syphilis there probably was organic heart disease.

Case 4456:—man age 88, entered July 27, dying next day. Diagnosis of cerebral thrombosis. No recorded symptoms.

Case 4444:—woman age 36, entered May 29, dying July 25, with pulmonary tuberculosis.

Case 4438:—woman age 26, entered July 3, dying July 27, under diagnosis of partial obstruction at ileo-cecal junction. Operation on July 21 showed adhesions at ileo-cecal region which were dissected loose, and cyst of right ovary removed. Patient's pulse and temperature went up from time of operation and staid up until her death four days later. There was, of course, an immediate cause of death which should have been entered. Surgical shock, followed by septic infection, probably was the cause of death.

Case 4424:—man age 47, entered July 3 with extensive burns, dying July 20. Diagnosis extensive burns. When a patient lives past the stage of primary shock, there is usually some secondary cause of death following burns. This patient evidently had the acute nephritis which so frequently follows burns and may have had a general infection.

Case 4181:—man, entered May 29, died on 30th. Diagnosis of heat prostration. History of drinking much tequila and then large quantity of ice water. Taken with violent pain in abdomen. Patient in great mental anxiety, skin cold and clammy, urine suppressed. Subnormal temperature.

Case 4124:—boy 13 years old; acute nephritis, apparently grafted upon a chronic nephritis which followed influenza in March. Entered April 20, died May 18.

Case 4114:—man age 59. Entered May 8. Osteomyelitis and periostitis; general septicemia, in spite of operation.

Case 4109:—man age 46, entered May 7. Old tuberculous patient with ankylosing arthritis of spine. Operation for appendicitis (chronic). Died following operation, with some heart complication associated with paroxysmal tachycardia.

Case 4102:—woman age 28, entered April 28, with diagnosis of encephalitis. Three weeks before coming to hospital had influenza, followed in ten days by extreme nausea and vomiting. Phys. exam. was all neg. including chest. Very rigid abdomen and tender, with foul smelling purulent

vaginal discharge. Vaginal examination unsatisfactory on account of extreme pain and tenderness. White count was only 8,800. On 11th hospital day temperature rose suddenly and ranged high until her death on the 17th day. Diagnosis of secondary pneumonia for terminal illness. Does not seem that sufficient importance was given the pelvic and abdominal conditions; no diagnosis of a lesion in either is made.

Case 4648:—man age 42, entered Sept. 9th for the third or fourth time, having operation for lesion which proved to be subdural or brain abscess. After some temporary improvement, patient relapsed and died Sept. 15th.

Case 4641:—married woman, age 51. Entered 9/9 with diagnosis of ruptured appendix. This was correct and subsequent to operation patient failed to improve and died Sept. 12.

Case 4610:—single woman age 31, entered Aug. 12 for operation for appendicitis, from which she recovered. After this she developed cystitis, pneumonia, and the cause of death is given in the record as "carbuncle of the kidney."

Case 4480:—married woman, age 31, entered Aug. 2. Diag. parturition and appendicitis. Appendectomy was done, appendix being found covered with fibrin and inflamed with free fluid and fibrin in abdominal cavity. The pathologist did not find evidence of internal acute changes in appendix, raising the question as to the possibility of there being a peritonitis from some other source affecting the appendix externally. Peritonitis was evident the next day after operation and patient died on second day.

Case 4572:—married woman age 49, entered Aug. 26th, dying on 28th, according to record, from "anuria from lowered blood pressure, depending upon cardiac failure." Physical findings are recorded, but nowhere is there diagnosis of the cardiac lesion.

Case 4519:—married man, age 63, entered May

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9th, with diagnosis of carcinoma of rectum. Had several ups and downs during stay, finally dying on 107th hospital day. Good record.

Case 4520,—married woman age 60, entered Aug. 12, dying 8/15, diagnosis of diabetes mellitus.

Case 4524,—man age 86, entered April 23rd, had fracture of femur a few days before entrance. Had arterio-sclerosis and senility. Gradually grew weaker and died June 22d.

The failing to give proper and admissible cause of death is the chief serious outstanding criticism of the records.

Dr. Goodrich commented upon Dr. Watkins' report. Our percentage of deaths is not as high as this report might indicate. As a matter of fact, they are decidedly lower than in other hospitals. He also said that we now have a trained statistician. She has all records filed, indexed and cross-indexed so that it is now possible to make a study of any certain class of cases treated in the hospital. He advises all members to make use of her services.

There were several who questioned the diagnosis of the carbuncle of the kidney. Dr. Vivian explained this has been in use for a number of years to indicate multiple abscesses occurring in the kidney, analogous to carbuncle of the subcutaneous tissues.

As there were two patients waiting to be demonstrated the chairman called for demonstration of patients as the next order of business. Dr. McIntyre had just been called out and Dr. E. H. Brown, who was familiar with the patient was called upon to take his place. Dr. Brown reported as follows:

A small boy, age 6, was struck on forehead above left eye by a slow moving automobile, and was knocked to pavement, hitting the right side of his head. Dr. McIntyre was called; the boy was found unconscious and taken to Deaconess Hospital. Examination showed minor skin lacerations over different parts of his body; marked contusion of scalp above right ear; a profuse serous discharge from right ear. He could not move right arm and leg but no restriction of movement of the left arm and leg. Rolled head from side to side; eyes moderately contracted but reacted to light; pulse and respiration practically normal. Flat x-ray showed rectangular undepressed fractures involving the right temporal and parietal bones and transverse fracture of frontal. Puncture made; pressure of fluid normal; no blood in fluid. Eye grounds negative; boy unable to swallow.

Two days later, pressure symptoms developed; marked opisthotonus, nystagmus and turning in of eye balls. No depressed bone fragments were shown in stereo-x-ray. A decompression thought indicated; skull opened on left side over motor area of right leg and arm. The dura bulged up into opening and presented a bluish appearance; dura opened and a moderate number of small blood clots were removed. A rubber drain was inserted and next morning skull cap was saturated with fluid. The boy was able to swallow and move right arm and leg; the opisthotonus and eye symptoms remaining. The boy has made a slow gradual improvement; at the present time appears to partially understand what is said to him; has not been able to talk but has commenced to mumble. Case has been examined by Drs. McIntyre, Brown, Goodrich, Watkins and Bailey during the acute stages.

Discussion of this case was general; all were apparently pleased and interested in the splendid result obtained. Dr. Goodrich, who with Dr. E. H. Brown had operated on the patient, said he had nothing special to add to what Dr. Brown had said. The improvement in the child the morning following the operation was most gratifying. Dr.

O. H. Brown asked if cistern puncture might have been done to an advantage in this case.

Dr. Watkins, who had been associated with the other physicians in this case, said he had been contemplating the puncture but the fact that the decompression operation was decided upon caused them not to do it; but due to the fact that the spinal fluid was negative and there was definite intra-cranial pressure, the cistern puncture was indicated.

Dr. Watkins was called on to demonstrate his patient. This man gave history of sticking end of fork in his tongue two years before; shortly after this a nodule appeared at this spot, which has gradually grown larger. About two months ago, lesion became very painful and there was a diffuse leucoplakia, with superficial ulceration. Man had history of chancre thirty years ago, and Wassermann at this time was positive. Specific treatment was given for several weeks, with disappearance of the ulcers and much of the leucoplakia, but without effect on the nodular, indurated lesion on top of tongue.

He was referred to Phoenix about a month ago to have section taken from the lesion. This was not done because observation of the lesion seemed conclusive of malignancy. Patient was returned to his physician with the advice that any treatment undertaken by radiation must be preceded by destruction of the lesion which involved half of the tongue. He was sent back about three weeks ago and Dr. Watkins and Dr. Vivian destroyed the growth and removed the front half of the tongue with electrocoagulation, intending to introduce radium needles. However, the result from the electrocoagulation is so good that radium will not be used at this stage. There are some glandular metastases which are receiving intensive radiation. The amputation of the tongue with electrocoagulation was done under chloroform anesthesia, without loss of any blood, and patient was able to eat and talk so as to be understood on the following morning. Primary result is satisfactory and future development will depend on the glandular metastases.

Dr. Tuthill was next called upon for his presentation of a study of case histories of head injuries treated in this hospital for the past two or three years:

"In attempting to analyze the records of the 24 cases of head injury that have been treated in the Hospital, I was immediately confronted with the fact that the records were so poor that a real analysis was impossible. After going through them carefully three times the number that contained sufficient data to make their consideration possible was reduced to twelve. I feel perfectly free to make this bald statement as one of my own cases came under the head of unsatisfactory. Considering the 12 cases, we find that eight were caused by auto accidents, one gunshot wound, one struck by weight, and two not stated. Six were conscious when entering hospital, although no note is made as to whether or not they had been unconscious; six were unconscious on admittance; ten had visible wounds about head; two had no mention of wounds; location of wounds stated as frontal in two; fronto-temporal in one; parietal in three; vault one; occipital two; not located in three. Fracture was diagnosed as basal in three; vault in two; no fracture in seven. Of the five diagnosed as fracture the x-ray did not confirm in one basal. In only one case, a basal fracture, was operation performed; spinal puncture was done in two, bloody fluid found in both; pressure recorded in but one; two cases died, both recorded as basal fracture. Condition on discharge from hospital recorded as good in seven; fair in one; details of impairment in two. Blood pres-

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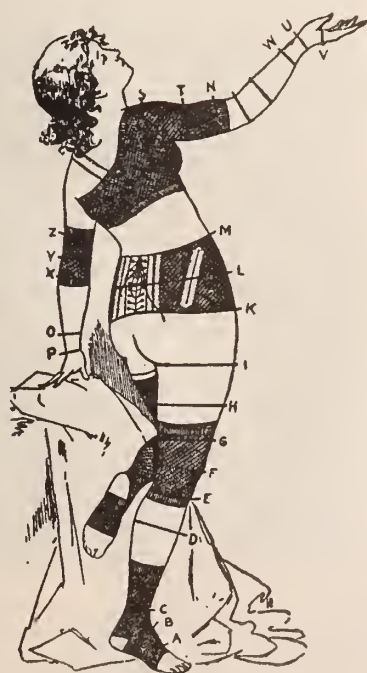
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sure was noted as taken in one case, but the actual pressure was not entered on chart.

As to treatment, four seemingly received no treatment, except rest; one had depressed fracture elevated; four received magnesium sulphate; and three, a various assortment of drugs.

I realize that the foregoing is rather an analysis of the records of these cases rather than injuries themselves. Nothing more was possible from the records. We must improve our records.

I confess to a certain amount of shock as I re-read the record of my own case and I made a firm resolve to see that as far as I am concerned no such carelessness will obtain in the future.

As to the classification and treatment of head injuries, I have made in the last few months a careful review of the literature of the last ten years and find that Weaver's paper in the September, 1925, number of Surgery Gynecology and Obstetrics contains everything that need be said. As all of the staff may not have access to this article I have lifted it almost verbatim. Using the classification of Dowman, he states:

The classification and the respective indications as to treatment are as follows:

Class A. Massive brain injury, with evidence of rapid exhaustion of the medullary centers, and death within one to several hours after admission.

Treatment: These cases are hopeless and operation is contra-indicated.

Class B. Definite evidence of middle meningeal hemorrhage. As immediate operative interference is imperative, one must keep a clear mental picture of the cardinal symptoms, which are as follows:

1. A free interval of consciousness, often of short duration. In children several days of consciousness may elapse before pressure symptoms develop. On this account children should be kept under the closest observation for several days when the type of injury would lead one to suspect the possibility of extradural hemorrhage.

2. A slow bounding pulse, following a slightly rapid and small pulse.

3. Stertorous respiration, as contrasted with the superficial respiration of cerebral concussion.

4. The gradual development of hemiplegia or contralateral convulsions.

Treatment: The operation of ligation of the bleeding artery with subtemporal decompression must be done, and done quickly.

Class C. Simple or compound depressed fracture, with localized brain contusion, with or without indriven bone fragments.

Treatment. Debridement is indicated. Contused brain and blood clots are carefully removed by catheter suction. The dural opening is accurately closed if possible and the bone defect is partially filled by replacing the fragments of bone that have been removed.

Class D. Classic manifestations of rapidly increasing intra-cranial pressure which are well within the period of medullary compensation.

Treatment: Though these cases are in a measure borderline ones, and though many would possibly recover without operation, it is our experience that subtemporal decompression, with or without a rubber wick drain under the temporal lobe, offers the best chance of recovery.

Class E. Definite evidence of brain injury exhibiting no classic findings of acutely increasing intracranial pressure, yet of the type that experience has shown is liable to develop gradually increased intracranial pressure due to fluid accumulation.

In the large majority of this group, it will suffice to give one-half ounce of a saturated solution of magnesium sulphate every 2 hours for 48 hours (smaller doses in proportion for children).

After this the interval of doses is lengthened day by day as the patient improves, until the seventh to tenth day, when the hypertonic treatment is discontinued. If, despite the oral administration of magnesium sulphate, there should develop any evidence of increased intracranial pressure, such as bilateral choking, stertorous breathing, etc., this treatment may be supplemented by one intravenous injection of 50 cubic centimeters of a 30 per cent sodium chloride solution for quick effect, followed by intravenous injection of 10 cubic centimeters solution of magnesium sulphate. If, as in a few cases, the pressure symptoms continue and especially a hemiparesis develops, then a subtemporal decompression with rubber wick drainage may be resorted to. The hypertonic treatment in this class of cases is given with the idea of preventing late pressure symptoms caused by fluid accumulation, and thereby doing away with the necessity of late operations for pressure symptoms.

Class F. So-called concussion with no evidence of gross brain damage. After a few hours these patients are mentally clear and there are no gross neurological findings.

Treatment: Physiological rest and free purgation suffices.

Class G. Depressed fracture of a mild degree, giving rise to no symptoms whatsoever.

Treatment: Though many of these patients appear to be in excellent condition and are free from frank symptoms, it will frequently be found that underlying the depression is much contused brain and blood clot, a condition that may often result in development of a brain cyst. These fractures should be elevated, the dura opened, contused brain, if present, removed by careful catheter suction, the dura closed, and the bone fragments replaced.

Class H. Scalp lacerations without damage to the underlying structures.

Treatment: Scalp injuries are generally treated too lightly. The edges of these wounds should be trimmed away and the wound carefully closed with fine silk sutures. Unless this is done, especially if there is a slight injury to the underlying structures, the condition may possibly become a cause of brain abscess.

As to the technic of administration of magnesium sulphate and sodium chloride or other points not touched upon I refer you to the paper mentioned, as it contains all the information needed in compact form.

Dr. Watkins said he thought physicians are often too reckless in ordering x ray of head injuries. It is often dangerous to attempt to secure films of the basal region on account of the positions of the head required. As simple an examination as is possible, with as careful handling of the patient as possible, should be all that is done immediately following the injury. To order a complete x-ray examination of the vault and base, immediately after the injury, as is very frequently done, subjects the patient to grave danger of aggravating whatever injury may be present.

Dr. Stroud said it would appear from Dr. Tut-hill's talk that most cases of head injuries are surgical. He emphasized the importance of surgical intervention in the cases of basal fractures, particularly if the patient has been conscious and then becomes unconscious.

Dr. Holmes asked why, in the patient demonstrated this evening, operation was delayed six days. It had been brought out here some time ago, he said, that a case of head injury, minor or serious, should be kept quiet in bed for days and even weeks after the accident, and it might be well to keep this patient quiet.

Dr. E. H. Brown said the operation had been de-

layed because the indications for an operation had not seemed clear until just before the operation was done. As for keeping the patient quiet, he was in favor of it and believed Dr. McIntyre was too.

Dr. O. H. Brown said it seemed advisable to emphasize the giving of Epsom Salts in sufficient dosage in these cases.

Dr. Watkins said he thought he had seen definite harm done in getting x-rays of injured heads and spines and wished for some apparatus to hold these patients so as to avoid much moving of them. Drs. Tuthill, E. H. Brown, Fattebert, Goss, Smith and others offered suggestion for an apparatus to hold injured head and spine cases.

Dr. Tuthill, in closing, said that he feels that most cases of brain injuries are not kept in bed long enough. In regard to the boy shown this evening he should be in bed with passive exercise only. A good executive is one who decides instantly and is sometimes correct. A good surgeon is one who ordinarily acts slowly and conservatively and is right more often than wrong.

Dr. Mills was called upon to discuss the extent of the neurological examinations which should be made of cases with head injuries. He emphasized the recording, carefully and minutely, of both the history and the examination.

- The evidence of external injury.
- The presence or absence of vomiting.
- Hemorrhage from the ears, nose or mouth.
- The size, equality, shape and reactions of the pupils.
- The presence of spasticity or flaccidity of muscles should be noted, and record of the muscles involved.
- Test for the arm tendons, abdominal, cremasteric, patellar, Achilles, Babinski, Gordon, Oppenheim and Chaddock reflexes should be made.
- In the event that there is complete conscious-

ness and full cooperation of the patient, it is well to test for evidence of sensory changes.
If it is advisable to have patient stand, Romberg should be done.

In most head injuries, the spinal fluid should be examined for the presence of blood, and note should be made as to whether or not the fluid was under increased pressure.

Adjournment at ten o'clock.
ORVILLE H. BROWN, Secretary.

EL PASO MASONIC HOSPITAL
Staff Meeting Sept. 1, 1925.

Case report by Dr. Garrett.
LUETIC HEPATITIS

Complaint: Pain in the upper abdomen and slight diarrhea.

Past History: Widower. Occupation lumberman. As a boy had malaria but has been free from it for the past 25 years. In 1912 and 1925 had ptomain poisoning with a good deal of pain in the upper abdomen. Had typhoid in 1919. Beginning in October 1924 he had fever off and on until January, 1925. During this illness he passed blood and mucus with straining. In March, 1925 he had pneumonia and was in bed six weeks. He was told to come west for fear that he might have some tubercular tendency, though there was no positive evidence found at the time. Said to have had no venereal disease.

Patient's wife died in 1924 after a long continued illness from some baffling disease. There was doubt about the diagnosis of the lung condition, some experts saying that she had tuberculosis and others that she had not. A Johns Hopkins pathologist reported after postmortem examination that she died of an unusual tropical disease called "monila" disease. One of the lungs was replaced by a gelatinous mass.



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Present Illness: In August, 1925, patient began having a little fever aching and nausea. There was no diarrhea until about August 10th. Patient took aspirin on account of fever and states that he had chills and sweats for two or three days before consultation. He complains of lack of appetite, is nauseated occasionally after meals, occasionally has acid regurgitation, and complains of dull pain in the epigastrium. He has three or four liquid stools daily. Temperature 101, pulse 130.

Physical Examination: Patient is rather healthy in appearance. Good color, well built, well nourished. Light hair, eyes clear, tongue clean. Tonsils not infected. Palpable lymphatic glands not enlarged. Teeth in good condition. Slight infection of gums. General reflexes normal including pupils which react normally to light and distance. Romberg's negative. Chest normal, well formed and on inspection shows normal respiratory movement. No signs of disease about the lungs. They are everywhere clear and free from rales. Heart normal in size and position, sounds clear and normal in rhythm.

Abdomen is normal in contour. No hernia. No mass. No scar. Kidneys palpable. Spleen not palpable. Colon not felt and is not tender. No tenderness of McBurney's point. Just at the right of the epigastrium, under the costal arch extending 2 or 3 inches to the right there is tenderness and muscular spasm. The liver is uniformly enlarged the dullness extending from the fifth interspace above in the mammary line to one inch below the costal arch.

Rectal wall smooth to palpation. Examination with sigmoidoscope shows normal mucosa up to about the first portion of the sigmoid. Prostate normal.

X-ray examination by Drs. Cathcart and Mason shows normal diaphragmatic excursion. Heart is enlarged to the left.

Urinalysis: Amber, acid, 1019 S. G., albumin 0, indican 3 plus, acetone 1 plus, total acid 45, W. B. C. rare, R. B. C. O. Epithelium rare, bacteria 0.

Stool: Brown, odor penetrating, reaction acid plus consistency formed, bile 3 plus, neutral fat 0, muscle fibers 1 plus, unstriated muscle 1 plus, ova and parasites 0, W. B. C. O, R. B. C. O, Cercomonads 3 plus.

Blood; Rbc. 4, 350,000 whites 11,100, hemoglobin 75% Polys: 77 transitionals 3, small mononuclears 18, large mononuclears, 2.

Hemoglobin 80%, Malaria not demonstrable. Wassermann negative.

Spinal fluid: Appearance clear, pressure 14, cell count 6, Fehlings Pos. Globulin not increased, Wassermann 6 drops neg. 12 neg. 20 drops neg.

This patient entered hospital with temperature 99.6 which went to 103 within three hours, several liquid stools daily, pain in the upper abdomen.

He was put on a selected diet, and neosalvarsan administered. Patient felt better next morning. Mercurette was administered by inunction. Symptoms cleared up rapidly, liver diminished in size. Patient left hospital at the end of 11 days much improved.

Discussion: The question was raised as to the diagnosis of leucic hepatitis in a case that showed negative Wassermann both of blood and spinal fluid. Dr. Garrett replied that many authors were agreed that the majority of cases of tertiary syphilis of the liver gave a negative Wassermann.

Case report by Dr. J. H. Gambrell.

Patient is a well developed young woman, about 23 years old, married, occupation housewife.

Family history: Father died from an accident. Mother died at 41 from tuberculosis. Brothers and sisters living and in good health.

Past history: Childhood history is negative ex-

cept for colds when living in Colorado. Some sinus trouble. Had influenza in 1918 not followed by pneumonia. She has suffered at times from neuritis in her arms and legs, never severely. Her only real illness was about two years ago when she was delivered at 8 months instrumentally of her only child. This was her only pregnancy. Pregnancy has carefully been guarded against.

Complaint: Pain in the left kidney region, extending into the inguinal region. Feels generally ill. Pain radiating down the left leg. Nausea and vomiting are symptoms. Onset was sudden. Menstruation began last night about eleven o'clock, flow being free but it being her regular menstrual time. The last two periods have been on time, but she suffered an unusual amount of pain both times and frequent urination was necessary at both of those periods, and not a symptom at this period. She has had no blood in the urine at any time. Bowels and kidneys have acted freely this morning.

Physical Examination: Young woman apparently suffering acute pain. Temperature 98.6, pulse 76, respiration 24. Nose and throat free of inflammation. Complaints of some pain in the left ear, but there is no evidence of inflammation.

Chest is negative for rales, lagging or deformity. Heart is negative for murmurs, normal in size and position.

Abdomen: Very tender on palpation of the left lower quadrant. Extremely tender over the left kidney region.

Vaginal examination: Cervix is freely movable, deep pressure on the cervix produces some discomfort in both sides of the pelvis but not until the uterus had been moved forward. There is no bulg-

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ing in the cudesac; no sensation of thickening. Patient complains of as much discomfort in the right side of the pelvis as in the left. In neither side is tenderness marked. Pain and tenderness in the costovertebral region left side. No general abdominal tenderness. No rigidity. An x-ray of both kidney regions requested.

Blood count on entrance into hospital 20,600, polys 94%.

Working diagnosis, possible tubal pregnancy.

Urinalysis on entrance, slightly turbid, 1010 S. G. trace of albumin, neg. sugar, neg. for indican, acetone, diacetic acid and bile, negative; occasional finely granular casts, moderate amount of pus cells. Negative for blood. Blood culture after 72 hours, negative. Napkins show no evidence of tissue fragments, discharge is fluid in character, there are no clots. The leukocytes varied from day to day from 26,000 to 8,800. Urinalysis made every day or two usually showed trace of albumin and many W. B. C. Temperature ranged from 99 to 106 for 21 days.

Patient lay in a sort of stupor, could be roused, responded very slowly and weakly when aroused, suffered extremely from nausea and vomiting, had an occasional chill, was restless, temperature remained high, and she continuously complained of pain in left kidney region, when asked to define her pain. She slowly became able to retain liquids, and made a slow convalescence, going home by ambulance.

Treatment:: Proctoclysis, ice bags, heroin for pain, triple bromides, calomel. Glucose and soda, Bland's pills, hot packs, intravenous urotropin, spinal puncture, (after spinal puncture temperature, pulse and respiration dropped); temperature never went above 99 after this time. Wassermann was negative.

Discussion: When first the patient was seen, ectopic pregnancy was suspected, but this was ruled out early. The pelvic tenderness did not justify all the trouble she was having. Perinephritic abscess was the next indication. Chest was negative. High afternoon temperature, high leukocyte count, high polys, and no intense pain, yet constant tenderness in left kidney region.

Dr. Jamieson was of the opinion that there might have been a hydronephrosis of this kidney with the final breaking through, as shown by white blood cells appearing later on in urinalysis. He stated that one might get a high temperature from stricture of the ureter. This would also account for the low pulse, as in these cases the pulse does not rise in proportion of the temperature.

Dr. W. L. Brown remarked that the leukocyte count and temperature showed inflammation early after the onset. History shows that the month before she had an attack of pain which might have been caused by passing a small calculus. Added to this the fact that in the present attack, the pain was sudden and acute, would suggest that she had passed a calculus, probably lodged from the month before. To my mind the temperature of 106 shortly after, would indicate not perinephritic inflammation but infection of the kidney itself which is often the occasion of excessively high temperature. My impression would be that this was a kidney infection, probably superinduced by passing of calculus.

Discussion continued along this line, but no final conclusion was arrived at.

Case of Dr. Felix Miller's.

Woman 44 years old, white, married, occupation housewife.

Family History: Father deceased, cardiac diseases, acute articular rheumatism. Mother deceased, 52, acute lobar pneumonia. One sister alive

and well, one brother died of measles at the age of nine months.

Past History: The patient had measles and whooping cough in childhood. She had dengue, and influenza in 1918, not severe, no complications following. Menstruation began 13, was regular, 28 day type, duration of flow three or four days, not attended by pain or cramps or backache. First noticed frequent and profuse menstruation seven or eight years ago.

Dr. Clark of Houston, three years ago examined and told the patient that she had a polyp.

Hemorrhage from the uterus, severe, with loss of appetite and strength; severe anemia, leucorrhoea profuse. Severe flooding began May 12, 1925. This was her regular period. In a few days the loss of blood was so great patient fainted. There was no pain or cramping. She had been seen by another doctor on May 18th, but he did not examine her, said she needed a curettement. (Did not examine her due to her flowing at the time). Blood examination by Dr. Turner showed 25% hemoglobin. She was given hydrastis and ergot, and cacodylate of iron intravenously. She flowed one day, June 8th. Hemoglobin came up to 68%, June 20th. Had metrorrhagia during the winter of 1924-25.

Physical: No pathological condition noted of nose, throat or mouth. No enlargement of superficial lymph nodes, nor of the thyroid. Normal bronchovesicular breathing over both lungs. No increase in the transmission of voice sounds. No abnormal note on percussion. No heart murmurs heard; apex beat in the left 5th interspace $2\frac{1}{2}$ inches from the middle line. Abdomen shows no scars, no masses felt, no abnormal tenderness or rigidity. The uterus is slightly enlarged and tender.

Tubes and ovaries palpated, found normal. Cervix slightly dilated, protruding from which is a dense fibrous mass with pedicle that extends into the cervical canal.

Skin is pale, but free of eruptions and ulcers. No pathological lesions noted of bones or joints. Muscles well developed, reflexes present. Special: Hemoglobin 68%.

Working Diagnosis: Fibromyoma, submucous, uterine.

Urinalysis: Yellow turbid, acid, S. G. 1013, albumin pos. sugar neg., indican neg., acetone, diacetic and bile neg. casts neg. moderate amount of epithelium, small amount of pus cells, small amount of blood.

Postoperative diagnosis: Fibromyoma, submucous uterine.

Preoperative diagnosis: Fibromyoma submucous, uterine.

Ether anesthesia began at 8:30, closed at 10:45.

What Was Done: It was found that the pedunculated mass protruding from the cervix, led to the body of the uterus. The cervix was thoroughly sterilized with one-half strength iodine, and slightly dilated with steel branch dilators, and the mass easily returned into the cavity of the uterus. The cervix was sewed up, using two Pagenstecher sutures. The vagina was thoroughly dreted and an iodine sponge placed in contact with the vaginal mucous membrane and cervix. (To be removed later). The patient was catheterized on the table. The vaginal work began at 8:25 and the abdominal preparation was ready at 9 a. m.

The abdomen was opened in the midline between the umbilicus and the pubes, and the patient placed in Trendelenberg position. The uterus was brought into normal position and Ochsner forceps placed on the uterine end of both tubes and the uterine side of the round ligaments, catching the blood vessels at these points. A second artery forceps was placed distal to these forceps and the tube and broad liga-

ment and round ligament cut between forceps. The forceps on the uterine side were used as retractors, and by means of these the uterus was drawn up as high as possible into the abdominal wound. The anterior layer of the broad ligament was separated along both sides of the uterus, until it approached the reflection of the peritoneum from the bladder to the uterus. Along this reflection, the peritoneum was incised over the uterus. The peritoneum and posterior wall of the bladder were dissected by blunt dissection from the anterior surface of the uterus and cervix until the uterine artery could be felt. After the uterine arteries were identified and palpated, they were grasped with artery forceps near the uterine tissue and the arteries cut between forceps. No. 2 chromic catgut was passed around the proximal end of the uterine artery, the needle going through the outer portion of the parametrium and the uterine artery ligated. The forceps were removed and another ligature was applied of catgut plain No. 2, to that portion of the artery protruding. In similar manner both uterine arteries were ligated. The tissues around the lower end of the cervix were separated from the deep layers of the bladder and peritoneum until the surface of the vagina could be felt between the fingers and thumbs applied over the lower end of the cervix.

The gauze pack was removed from the vagina, and an incision parallel to the axis of the vagina was made on the anterior surface. The cervix was brought into view, caught with a tenaculum and brought into the abdomen.

The lateral surface between the vagina and cervix was incised with scissors until the posterior surface of the cervix was reached. All bleeding was controlled by forceps. A small flap of peritoneum was dissected from the posterior surface of the uterus, and the posterior vaginal wall severed with scissors and the entire uterus removed. The adnexa were not removed. The vagina was closed with No. 2 chromic cat gut without drainage. The round ligament and the remains of the broad ligament were fastened to the upper surface of the tissue of the vagina.

All bleeding was controlled, perineal surface mopped dry, ovary and tube placed in the posterior cul-de-sac. The sigmoid and ileum were allowed to fall into the posterior portion of the pelvis. The omentum was next brought down and placed between the suture line and the small intestine. A small rubber tissue drain was carried to the bottom of the posterior culdesac and the peritoneum closed with No. 2 plain, the fascia with No. 2 chromic. Two silkworm gut stures through and through all tissues down to the peritoneum were passed and tied. The skin was closed with Mitchell clips.

Progress Record: Day after operation abdomen distended in upper half, drainage changed, slightly stained with serosanguineous discharge. The third day, restlessness and vomiting began, patient had no pain, no rigidity, no tenderness. Lungs clear. No nausea or vomiting since insertion of duodenal tube. Dextrose given intravenously. Patient progressively got worse, and expired the fifth day.

Partial Autopsy: A midline surgical incision has recently been made below the umbilicus. There is no drainage from the wound and the sutures are all in place. There is no evidence of infection in the abdominal wall. The peritoneum is grayish in color, smooth and shining. The bowel is markedly distended with gas, but there is no evidence of obstruction. The uterus and tubes have recently been removed. A coil of sigmoid resting upon this wound is slightly roughened with a plastic exudate but there is no evidence of infection about the wound or sigmoid.

The spleen is slightly larger than normal and presents a grayish colored capsule. The capsule peels with no difficulty and the splenic pulp is very soft. The spleen tissue is so soft that a sharp knife tears its way through the structure. The cut surface is of a dark brown color and very moist. The Malpighian bodies are prominent.

Both kidneys present the same picture. They are slightly larger than normal and show rather marked congestion. Their capsules peel easily leaving punctuate hemorrhages. The glomeruli are prominent.

Anatomical Diagnosis: Paralytic ileus; splenitis, acute degenerative; nephritis, acute. Geo. Turner, M. D., Pathologist.

DISCUSSION

Dr. Miller stated that when he first saw the patient that her hemoglobin was 25% and that at the time of operation it had been raised to 68%. He spoke of his operative procedure, and how soon after albuminuria developed, the patient's mental attitude was bad, and how the patient got progressively worse, and expired on the fifth day.

He said that she was a bad surgical risk, due to the low hemoglobin, and that she died of acute splenitis and acute nephritis.

Dr. Brown said that he would not have done a hysterectomy for uterine polyp. That in his opinion the uterus should have been dilated, and the cautery used for removing the polyp.

Discussion arose as to the advisability of radium for polyp, and there was disagreement as to its efficacy in those cases.

The use of the snare was suggested, with packing or cautery to control the bleeding.

Dr. Jamieson asked for a reading of the urinalysis on the day of operation, and found that there was a

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trace of albumin and small amount of blood the day of operation.

Dr. Craige thought the patient should have been curetted, the polyp removed, and bleeding controlled. He stated that in his opinion, hysterectomy was not indicated.

There was no further discussion.

NEW MEXICO NEWS

THE PECOS VALLEY MEDICAL ASSOCIATION held its thirteenth annual session in Roswell, on October 9th. A splendid program was arranged. There was a good attendance from the physicians of the various counties comprised in the district. Visitors from a distance were Doctors Miller and Dillon of Clovis, Brown of Fort Sumner, Johnson of Carizozo, Puckett of Hope, Culpepper of Carlsbad and Luckett of Santa Fe.

A banquet was given to the members and guests by the Chaves County Medical Society, in the dining room of the Elk's club at 7:30 p. m.

DR. M. B. CULPEPPER, of Carlsbad, was elected president and DR. C. F. BEESON, secretary, for the coming year.

The 1926 meeting will be held in Carlsbad.

DR. W. T. JOYNER, of Roswell, attended the meeting of the Board of Medical examiners in Santa Fe on October 12th and 13th.

DR. J. S. B. WOOLFORD, who has been in Roswell several years for the benefit of his health, and who is held in high esteem by the medical profession of that community, entertained on the evening of October 12th, with an elaborate dinner party.

The table was bright with beautiful flowers and four bright red candles proclaimed to the guests that it was a birthday celebration. The host explained that each candle represented ten years. The guests for this pleasant occasion were Drs. C. T. McClane, H. V. Hall, J. A. Smith, H. A. Ingalls, T. E. Presley, D. D. Swearingin, E. M. Fisher and C. M. Yater.

After dinner was over, the guests remained in pleasant rehearsals of interesting occasions coming up in their various experiences until the lateness of the hour proclaimed that it was time to retire and each took his departure after wishing that they may again be with Dr. Woolford until there be at least four more red candles burning on the table.

DR. R. EDGAR DAVIS, formerly of the Minnqua Hospital of the Colorado Fuel & Iron Co., at Pueblo, Colo., announces his removal to Albuquerque and affiliation with the staff of the Womens and Childrens' Hospital. His offices will be at 608-609 First National bank bulding.

PERSONALS

DR. HARRY R. CARSON, of Phoenix, has returned from a six weeks' visit to St. Louis, where he took special work with Dr. Marriott and Dr. Vedder.

DR. S. D. LITTLE, of Phoenix, recently returned from a month's work in the east, chiefly in the lines of physiotherapy. He had hardly settled down in Phoenix when he was the victim of a very painful automobile accident, in which he suffered severe cuts about the face and head; this confined him to the hospital for several days.

DR. T. T. CLOHESSY, of Phoenix, and family were the occasion of sympathetic concern recently when their six-year-old daughter was run over by a truck and seriously injured. She suffered two rib fractures, lung puncture with collapse of right lung and grave shock. She seems to be recovering, however. Dr. Clohessy has recently returned from a six months' period of postgraduate work in dermatology in New York City.

DR. KIMBALL BANNISTER, of Phoenix, left

his practice in Phoenix long enough, recently, to go up to Clemenceau and annex the state golf championship from a field of star players.

ST. JOSEPH'S HOSPITAL in Phoenix has let the contract and work has started on the new addition for the offices of the hospital. A new wing is planned also which will increase the hospital capacity about fifty beds. The new wing will be continuous with the Fourth Street annex and will make a continuous frontage on Fourth Street from Polk to Taylor.

DR. MORTON S. KIMBUL, formerly of Oakland, Calif., has located in Phoenix. Dr. Kimbul's work will be confined to physiotherapy, and his offices will be at 401-2 Luhrs Building. He is a graduate of Dorpat University, Russia, and was licensed in Arizona by reciprocity with this school. Dr. Kimbul has been in Oakland for the past ten years, associated with Dr. Alvin Powell, and the Oakland Hospital.

BOOK REVIEW

MODERN SURGERY, General and Operative, by J. Chalmers Da Costa, M. D., LL. D., F. A. C. S. Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia. Ninth edition, Revised and Reset. Octavo of 1527 pages with 1200 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1925 cloth, \$10.00 net.

Da Costa's Modern Surgery appears in a new and completely revised edition of one volume. It is strictly a text book for the medical student. A single volume cannot cover enough ground thoroughly to make it worth while for the graduate.

A large amount of space is devoted to the treatment of war wounds, and to the diagnosis and treatment for syphilis. These could well have been delegated to special works on those particular subjects.

The chapter on fractures has been brought up to date and covered very well. The illustrations on the whole are good though we find many familiar faces copied from other standard works.

The literary style is pleasing and makes agreeable reading. One can well spend several pleasant and profitable hours with this volume.

B. F. S.

Very Singular

"Is pants singular or plural?" the stenographer asked the boss.

"If a man wears 'em it's plural," he replied.

"Well, if he doesn't—"

"Then it's singular!" added the boss.

NOTICE

Scholarships on the Oliver-Rea Foundation for graduate study in Medicine are available at the New York Post-Graduate Medical School and Hospital. Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City.

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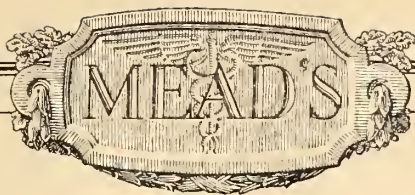
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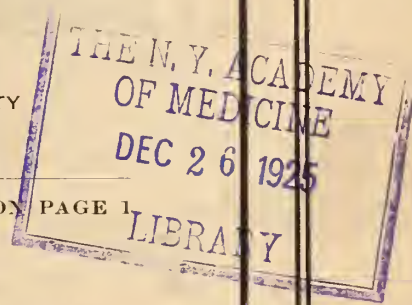
VOLUME IX

DECEMBER, 1925

No. 12

OFFICIAL ORGAN
OF THE
NEW MEXICO MEDICAL SOCIETY
ARIZONA STATE MEDICAL ASSOCIATION
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
OF THE SOUTHWEST

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Proceedings of the Eleventh Annual Session of the Medical and Surgical Association of the Southwest, El Paso, Texas, November 5 to 7, 1925

With registration on arrival of members, at the registration desk in the lobby of the Hotel Paso del Norte, the Eleventh Annual Session of the Medical and Surgical Association of the Southwest convened Thursday morning, November 5th, and for three rather strenuous but thoroughly enjoyable days, excellent instructive clinics were held in the mornings and scientific papers read and discussed in the afternoon sessions. The consensus of opinion was that beyond doubt this was the best attended annual meeting the Society has held, and the par excellence of the clinics, conducted by men who rank with the best in the medical profession today, and the high-class scientific programs, with papers on timely subjects, well repaid those members who had come from a distance to be in attendance.

On Thursday morning, November 5th, clinics were held as follows:

Masonic Hospital:

"Hysterectomy," Dr. E. B. Rogers, 8 a. m.

"Kidney Stone Case," Drs. James Vance and K. D. Lynch, 8:45 a. m.

Hotel Dieu:

"Anterior Colporrhaphy and Perinorrhaphy," Dr. Andres Villareal, 8 a. m.

"Appendectomy," Dr. Paul Gallagher, 9 a. m.

Crouse Laboratories, 504 Roberts-Banner Building:

"Electrocardiography: Demonstration and Interpretation of Electrocardiography," Mr. J. C. Wallach, Director, 9 a. m.

Dr. Crouse, during the demonstration, characterized the heart as a delicate four-cylinder pump which has mechanism similar to a four-cylinder engine, and explained

that certain parts of the heart send out electric waves which are recorded by the machine when connected with the patient.

Mr. J. C. Wallach, the electrical engineer giving the demonstration, said that the machine will work just as well with the patient several miles away, if the proper connections are made, as it will with the patient sitting in the same room.

Scottish Rite Cathedral:

"Diabetes Clinic," Dr. J. H. Musser, Professor of Medicine, Tulane Medical School, 10:30 a. m.

Dr. Musser discussed three cases of diabetes, who were presented by members of the Association. These were of different types, and served well to illustrate different methods of managing diabetes, which methods were discussed in full by Dr. Musser. A full account of this clinic will be published in an early issue of SOUTHWESTERN MEDICINE.

At 12:30 p. m., an informal luncheon for local El Paso and visiting physicians was held at the Hotel Paso del Norte, where wild duck supplied by local nimrods was served.

The scientific session, held in the Scottish Rite Cathedral, was called to order at 1:30 p. m., by Dr. Willard Smith, (Phoenix), First Vice President, presiding in the absence of Dr. H. H. Stark, President of the Association, who, on account of illness, was unable to be present. Before the opening scientific paper, a short business session was held, at which the report of Dr. W. Warner Watkins (Phoenix), Secretary-Treasurer, was read and approved.

Motion was made, seconded and carried, that a membership campaign be conducted during the meeting, the chair appointing

for such committee, Dr. Willis W. Waite (El Paso), Chairman, Dr. W. Warner Watkins (Phoenix), Dr. W. H. Woolston (Albuquerque), and any doctor from Northern Mexico who could be drafted for such service.

Motion was made, seconded and carried that a Committee on Necrology be appointed to draw up suitable resolutions for the families of those deceased members who had died during the year, and committee composed of Drs. R. D. Kennedy (Globe) and G. Werley (El Paso), was designated by the chair.

Dr. Charles S. Vivian (Phoenix) presented a paper entitled "Hypernephroma," in which he brought out various points essential in the diagnosis of tumors of the kidney, with lantern slides of pyelograms illustrating certain conditions. Discussion was opened by Dr. K. D. Lynch (El Paso), followed by Dr. W. R. Jamieson (El Paso), Dr. James Vance (El Paso), Dr. W. L. Brown (El Paso), Dr. J. I. Butler (Tucson), Dr. W. W. Waite (El Paso), and closed by Dr. Vivian.

Dr. J. H. Musser, Professor of Medicine, Tulane University, New Orleans, La., read his paper entitled "Diagnosis of Cancer," discussing three theories as possible causes of that disease. (The paper is published in full in another part of the Journal).

Dr. Edward Jackson, Denver, Colo., presented a paper entitled "Recent Views of Cancer by Experience with Ocular Tumors." Known throughout the country as one of the leading ophthalmologists, Dr. Jackson's paper received the keen attention it deserved. (The paper is published in full in another part of the Journal).

Motion was made, seconded and unanimously adopted, that the thanks of the Association be tendered to Dr. Musser and Dr. Jackson for their attendance and excellent papers.

Dr. George E. Goodrich, Phoenix, Ariz., read his paper, announcing change in title of same to "Non-Surgical Drainage of the Gall Tract from the Viewpoint of the Surgeon." Discussion was participated in by Dr. W. L. Brown (El Paso), Dr. W. Warner Watkins (Phoenix), Dr. J. H. Musser (New Orleans), Dr. Willard Smith (Phoenix), and closed by Dr. Goodrich.

"Tularemia," the subject of a paper presented by Dr. M. B. Culpepper, Carlsbad, New Mexico, created much interest, in that discussion was opened by Dr. Ancil Martin (Phoenix), who is recognized by the U. S. Public Health Service as the "father of tularemia," having reported the first cases

of this disease in 1907. Further discussion was entered into by Dr. W. L. Brown (El Paso), Dr. W. Warner Watkins (Phoenix), and closed by Dr. Culpepper.

Dr. Charles S. Vivian (Phoenix) made motion that the Association request the United States Public Health Service to give recognition to Dr. Martin in a way that would be lasting. The motion was duly seconded, and after some discussion unanimously carried.

Dr. John J. McLoone, Phoenix, Ariz., presented a paper entitled "Atypical Mastoiditis," which was discussed by Dr. J. M. Britton (El Paso), Dr. P. R. Casellas (El Paso), and closed by Dr. McLoone.

The scientific program for the day was concluded by a paper by Dr. Willard Smith, Phoenix, Ariz., entitled "Specialists," discussed by Dr. G. Werley (El Paso).

At 8 p. m., at the William Beaumont General Hospital, a clinical demonstration was given by the staff of the hospital, as follows:

Surgical—

- A. "Review of Case Histories in Fractures of the Extremities"—Capt. Glenn, Capt. McCall.
- B. "Dyestuffs in Eye, Ear, Nose and Throat Treatments"—Major Carlton.

Medical—

- A. "Lung Syphilis"—Major Scott.
- B. "Exophthalmic Goitre"—Major Haig.
- C. "Neuropsychiatrics"—Capt. Orbinson.

Friday, November 6, 1925

The clinical program was as follows:

Masonic Hospital—

"Homoplastic Endosteoma Chronica of the Long Bones." Two cases Gastroenteroptosis. Discussion and lantern slide demonstration Gastroptosis. "Demonstration of the Rays." Crouse technique. Dr. Hugh Crouse, 8 a. m.

"Hernia," local anesthesia, Dr. E. K. Armistead, 10 a. m.

Hotel Dieu—

"Duodenal Ulcer and Explore Appendix."

"Cancer of the Breast," radical operation.

"Comminuted Fractures, Radius and Ulna," open operation, Dr. W. L. Brown and Dr. C. P. Brown, 8 a. m.

"Hernia," local anesthesia; "Gall Bladder," Dr. B. F. Stevens, 8 a. m.

"Thyroidectomy," Dr. James Vance, 10 a. m.

County-City Hospital—

"Hemorrhoids," Sacral Anesthesia.

"Anal Fistula," Sacral Anesthesia.

Dr. W. R. Jamieson and Dr. E. D. Strong, 8:30 a. m.

Special Sections—Eye, Ear, Nose and Throat—fifth floor Two Republics Building:

"Eye Clinic," Dr. Edward Jackson, Denver, Colo., 9 a. m.

"Radiology," 311 Roberts-Banner Building, Dr. B. H. Orndoff, Chicago, Ill., professor of radiology, Loyola University Medical School, 9 a. m.

At the afternoon session, the first paper on the scientific program was that of Dr. Ancil Martin, Phoenix, Ariz., entitled "Magnetic Foreign Bodies Within the Eye (100 cases)." Discussion followed by Dr. S. A. Schuster (El Paso), Dr. Edward Jackson (Denver), Dr. R. P. O'Connor (Oakland, Cal.), Dr. W. Warner Watkins (Phoenix), and was closed by Dr. Martin.

Dr. Roderick P. O'Connor, Oakland, Cal., presented a paper entitled "Head Pains of Ocular Origin."

This was followed by an address by Dr. John C. Wilson, Professor Clinical Orthopedic Surgery, College of Medical Evangelists, Los Angeles, Cal., on "The Evaluation of Surgical Splinting in Spinal Caries."

Dr. B. H. Orndoff, Chicago, Ill., presented a paper entitled "Radiotherapy of Malignancy, with Special Reference to Breast Carcinoma." Dr. Orndoff, who is Professor of Roentgenology, Loyola University School of Medicine, at Chicago, emphasized the fact that radiology (the newest branch of medical science), increases length of life in cases of malignancy.

Dr. E. R. Carpenter, Dallas, Texas, gave a brief lecture on "The Surgical Treatment of Chronic Headache," asserting that this method of treatment will be generally adopted in the future, stating that "this is something new about which the world at large has heard very little. Severe recurring headaches of unknown origin are very frequently encountered and so long as the cause is unknown, treatment consists of temporary relief only."

The concluding paper of the day was that of Dr. R. J. Stroud, Tempe, Arizona, entitled "Preparation of Patients for Surgery to Insure Safety and Comfort," which set forth in detail the measures best calculated to attain such results.

At 9 p. m., a reception was given visiting physicians and their wives in attendance at the convention, by the Women's Auxiliary of the El Paso County Medical Society, at the Toltec Club, Mrs. H. H. Stark, hostess.

Chrysanthemums and other flowers from

the autumn gardens were used in beautifying the ballroom, with Mrs. J. W. Laws as Chairman of the Decoration Committee. Punch and cake were served.

The receiving line included Dr. J. H. Musser, of New Orleans, Professor of Medicine at Tulane University; Mrs. H. H. Stark, Dr. and Mrs. John A. Hardy, Dr. and Mrs. Laws, and Dr. and Mrs. Wilson of Los Angeles.

Mrs. E. H. Irvin and Mrs. R. B. Homan were in charge of the refreshments. Mrs. W. R. Jamieson and Mrs. P. E. McChesney formed the Program Committee, the numbers given being very much enjoyed.

An orchestra played during the evening.

Saturday, November 7, 1925

Clinics were held at the Scottish Rite Cathedral at 9 a. m., conducted by Dr. J. H. Musser, Professor of Medicine at Tulane University, New Orleans, La., on the subject of the heart.

At 10:30 a. m., a tuberculosis clinic was held, at which Dr. A. H. Forster, Superintendent of Cragmor Sanatorium, Colorado Springs, Colo., presided.

The scientific session was called to order at 1:30 p. m., by Dr. Willard Smith (Phoenix), First Vice President, and the first paper presented was that of Dr. Fred Holmes, Phoenix, Arizona, entitled "Clinical Conditions Simulating Pulmonary Tuberculosis."

This was followed by paper by Dr. James L. McKnight, Tucson, Ariz., entitled "The Differential Diagnosis of Disease of the Chest by X-Ray."

Discussion was opened by Dr. W. W. Watkins (Phoenix), who explained films used to illustrate points brought out by Dr. Holmes, followed by Dr. P. R. Casellas (El Paso); Dr. J. W. Laws (El Paso); Dr. A. C. Tenney (Chicago); Dr. J. I. Butler (Tucson), and closed by Dr. Holmes and Dr. McKnight.

Dr. John W. Flinn, Prescott, Arizona, presented his paper entitled "Allergy and Immunity in Tuberculous Infection," which was discussed by Dr. C. M. Hendricks (El Paso), opening, followed by Dr. James L. McKnight (Tucson), Dr. R. B. Homan (El Paso), and closed by Dr. Flinn.

Dr. R. D. Kennedy, Globe, Ariz., made motion that a resolution be passed by the Association, expressing the sympathy of the society and its hope for the speedy recovery of Dr. H. H. Stark, President of the Association, who has been ill and unable to attend the sessions.

After proper second, the motion was carried by rising vote.

Dr. H. A. Rasmussen, Assistant Surgeon,

United States Public Health Service, Fort Stanton, New Mexico, presented a paper entitled "Report of a Case of Pulmonary Tuberculosis Treated With Sanocrysin," discussion of which was opened by Dr. E. D. Price (El Paso), followed by Dr. W. R. Jamieson (El Paso), and closed by Dr. Rasmussen.

Dr. A. M. Forster, Medical Superintendent, Cragmor Sanatorium, Colorado Springs, Colo., gave a brief talk, taking the subject "Treatment of Tuberculosis from a Clinical Point of View," describing and reviewing the different methods now employed.

A paper entitled "Basal Metabolism in Pulmonary Tuberculosis," by Drs. W. A. Gekler and B. J. Weigel, Albuquerque, New Mexico, was read by Dr. Weigel, discussion being opened by Dr. J. W. Laws (El Paso), followed by Dr. R. P. O'Connor (Oakland, Cal.), and closed by Dr. Weigel.

Dr. L. S. Peters, Albuquerque, New Mexico, presented his paper entitled "Extra-Pleural Thoracoplasty," discussion of which was opened by Dr. F. P. Miller (El Paso), continued by Dr. A. M. Forster (Colorado Springs, Colo.), Dr. John W. Flinn (Prescott), Dr. Paul Gallagher (El Paso), Dr. Willard Smith (Phoenix), and closed by Dr. Peters.

Following the close of the scientific papers, the annual business meeting was held, applications for membership being reported from twenty physicians, all members in good standing with their respective Societies, as follows:

Dr. Paul E. McChesney, El Paso, Texas.
 Dr. Orville Egbert, El Paso, Texas.
 Dr. H. M. Shannon, El Paso, Texas.
 Dr. E. D. Price, El Paso, Texas.
 Dr. T. C. Liddell, El Paso, Texas.
 Dr. W. M. Branch, El Paso, Texas.
 Dr. W. S. Sharp, El Paso, Texas.
 Dr. John A. Hardy, El Paso, Texas.
 Dr. Eugene B. Clark, El Paso, Texas.
 Dr. P. R. Casellas, El Paso, Texas.
 Dr. E. W. Rheinheimer, El Paso, Texas.
 Dr. W. E. Vandevere, El Paso, Texas.
 Dr. Elliott G. Colby, Yuma, Arizona.
 Dr. Oscar C. West.
 Dr. John C. Wilson, Los Angeles, Cal.
 Dr. G. H. Fitzgerald, Bisbee, Ariz.
 Dr. N. C. Bledsoe, Bisbee, Ariz.
 Dr. J. Jiminez Aldama, Nogales, Son.
 Dr. F. S. Spearman, San Marcial, N. M.

Dr. W. Warner Watkins (Phoenix), Secretary-Treasurer and Editor-in-Chief of Southwestern Medicine, gave a brief report

in regard to the policies adopted in the publishing of the Journal, stating that the same policies would be continued throughout this year, as during the past year, with a new feature—that of also publishing in Spanish, abstract of the original articles, for the benefit of the Spanish speaking physicians in northern Mexico. The field has been thoroughly canvassed, and it is felt advisable to do this. All arrangements for translations, etc., have been perfected, and as the Journal is paying its own way, the expense would be immaterial.

Dr. R. D. Kennedy (Globe), reported for the Committee on Necrology that two members had died during the year—Dr. F. J. Nordby, of Fort Bayard, and Dr. E. Stadelman, Cananea, Mexico, and made motion that the usual resolutions be incorporated in the minutes and a copy mailed to the members of the families of the deceased, which motion was duly seconded and carried.

The election of officers being declared in order, the following were nominated and duly elected for the ensuing year:

Dr. Willard Smith of Phoenix, President.

Dr. Willis W. Waite of El Paso, First Vice-President.

Dr. L. S. Peters of Albuquerque, Second Vice-President.

Dr. W. Warner Watkins of Phoenix, Secretary-Treasurer.

With regard to the meeting place for 1926, both Phoenix and Tucson presented inducements, and as Dr. J. I. Butler, representing Tucson, wished to take the matter up further with colleagues in that city, he requested that the selection of a meeting place for 1926 be left open for at least a week, until he could make his report, and then be left to the Board of Trustees.

Motion to this effect was made and carried after proper second.

Dr. Paul Gallagher made motion that the secretary be instructed to write a letter of thanks to Nicolas Perez, Inspector de Migración, Ciudad Juárez, Chih., Mexico, for his courtesy in aiding members to visit Juárez, without which it would have been extremely difficult to cross the international bridge owing to the present strict requirements. After proper second, the motion was carried.

The usual resolutions of thanks and appreciation for the hospitality of the entertaining Society were passed and at 5:45 p. m., the meeting adjourned sine die.

OBSERVATIONS ON THE DIAGNOSIS OF CANCER

J. H. MUSSER, M. D.
NEW ORLEANS, LA.

Profes. or of Medicine, Tulane University Medical School

The extensive publicity, largely in the lay press, that has resulted from the recent publication of Gye (W. E. Gye, the *Lancet*, July 18, 1925, p. 109) has resulted in a rather sudden arousing of interest in the subject of cancer. This interest is manifested in meetings of medical men whether they congregate in large assemblies or whether they are discussing the question among themselves informally. For this reason, I thought it might be of interest to present to this organization a brief review of the theories of the causation of cancer and then to express some aphorisms on the diagnosis of cancer which, because they were so expressed might be more readily remembered and applied when opportunity presents itself in the shape of a patient with questionable signs or suggestive symptoms of carcinoma somewhere in the body.

HISTORICAL

Cancer has been known and studied for 2000 years and the disease has associated with it the names of many of the great historical figures in medicine. Hippocrates, the father of medicine (circa 400 B. C.) records cases of carcinoma that he had seen. Celsus (circa 20 A. D.) described an operation for the cure of cancer of the lip. Galen (circa 175 A. D.), the greatest anatomist of antiquity, one of the greatest physicians and the founder of experimental pathology and physiology, speaks of radical operation for cancer of the breast and his humoral theories were to dominate medical teachings for 1000 years until Avenzoar, the Arab, (circa 1150) who incidentally recorded a case of carcinoma of the stomach, Vesalius (c. 1550), Fallopius, the pupil of Vesalius (c. 1560), and de Vinci (c. 1500) were influential in commencing to destroy his authority. Guy de Chauliac (circa 1350) taught that cancer should be operated upon at an early stage and that the knife rather than the cautery should be used. Pare (c. 1570) was the first great surgeon to operate upon occult as well as "open" cancers.

Despite the fact that Galen's humoral doctrines were already discounted in the 12th and 13th centuries and nearly overthrown by the discovery of the circulation by Harvey (c. 1628) and the erythrocytes by

Malpighi (c. 1661), we find at the end of the 18th century men like John Hunter still under the influence of Galen's teachings. In truth, it was not until the early part of the 19th century that the discovery of the achromatic microscope (1824) and the application of this instrument of precision to the study of pathological histology, notably by Virchow, that the humoral theories of the origin of cancer were completely abandoned. Then began the histological era in which numerous theories of the causation of cancer were advanced by such pathologists as Virchow, Thiersch, Ribbert, Waldeyer, Cohnheim and others. These theories are too complicated and abstruse for the most part to do more than mention by the name of their author. It was during this period that the greatest advancements in the treatment of cancer in 2000 years were made, for by the discovery of the anesthetic properties of ether by Long, the horrible sufferings of mutilating operations were done away with, and by the advocacy of antiseptic surgery by Jenner following the teachings of Pasteur, surgeons no longer feared the generally lethal sepsis that destroyed their patients after operation and no longer hesitated to operate in the early stages of the disease.

If the 19th century may be considered the histological era of oncology, then truly the first quarter of the 20th century may be called the era of systematic experimental study. The past twenty-five years have witnessed an amazing and remarkable growth in the number of men devoting their lives, of buildings and institutions erected solely to the study of cancer by experimental methods. These studies run the gamut of statistical and biological, microscopical and clinical, physical and chemical methods employed in order to solve the main problem of the cause of cancer and thereby to discover some means of preventing the disease. The laboratories and hospitals devoted to the study of cancer, to mention but a few of them, include the Cancer Laboratory of the New York State Board of Health, the Huntington Hospital of Boston, the Oncologic of Philadelphia, the New York Skin and Cancer Hospital, the Cancer Laboratory of the Sprague Memorial Institute, the Barnard Skin and

Cancer Hospital in St. Louis, the Institute of Cancer Research at Columbia University, and, in part, the Rockefeller Institute in the United States; the Brompton Cancer Hospital, the Middlesex Hospital, and the very important Imperial Cancer Research Fund Laboratory in England; in Germany the Institute for Cancer Research, Charite Hospital Berlin, and the Institute for Experimental Therapeutics at Frankfort-on-the-Main; and the Japanese Society for Cancer Research.

THEORIES AS TO THE NATURE OF CANCER

As expressed by MacCallum (Text-Book of Pathology, Phila., 1916, p. 1042) the statement is undeniably true that "we are as yet quite ignorant of the actual cause of tumor growth." Despite our lack of knowledge of the nature of cancer, several theories have been advanced to explain the cause of cancer (one of which may be proven in the light of Gye's researches) which at least offer a framework upon which to hang the facts we know about the disease. I will sketch the most important of these theories very briefly and without attempting to elaborate upon any of them.

1. **Embryonal Theory.** This theory, ascribed generally but erroneously to Cohnheim, holds that tumors are the result of stimulation to growth of misplaced embryonal cells.

2. **The Theory of Anaplasia.** This theory, modified in many ways by various writers, holds that there is a reversion of the cell to a primitive type which is able to reproduce activity but not to function.

3. **The Parasitic Theory.** This, the oldest, the best known and the most obvious hypothesis as to the origin of cancer, implies that there exists some type of living organism, animal or vegetable, which by its presence in the tissues is able to stimulate them continually to growth. The type of organism, according to different writers, varies from bacteria and blastomyces in the vegetable kingdom to all types of animal parasites, ranging from spirochetes and round worms to some new form of organism. None of these organisms enthusiastically presented by their discoverers has been confirmed or proven to be the cause of cancer. Indeed, in the past fifteen years Ewing (Neoplastic Diseases, 2nd ed. Phila., 1922, p. 113) says the parasitic theory "has rapidly lost ground and today few competent observers consider it as a possible explanation of the unknown element in blastomatosis." In 1911, Rous (Jour. Exper. Med., 1911, 13, 397) described a chicken sarcoma the juice of which, when separated from the cells by filtration through a

Berkefeld filter, was able to reproduce the growth in secondarily injected chickens. Rous' remarkable observations on this "agent" present in the filtrate (he did not even call it a virus, simply recording his findings), came to naught. The fact was established that some unknown agent was able to reproduce the biological characteristics of each of the tumors employed and the question of a virus or some other unknown agent has rested until Gye's recent publication.

To those of you unacquainted with Gye's article, a brief summary of his recent paper might be of interest. Gye first shows that an ultra microscopic virus is present in all the culturable new growths. This virus can be grown in a special medium under anerobic conditions, growth of the culture being proven by the ability to photograph it with ultra-violet rays and by its ability to reproduce tumors from sub-cultures diluted a thousand billion times. This agent is destroyed by chloroform and becomes non-infectious in two to seven days. Infectivity is lost apparently not because of death of the virus, but because of an accessory chemical factor which Gye postulates governs infections of cells. As proof of this statement he shows that viruses which have been washed in saline solution lose their infectivity but if after washing, the accessory factor, termed hereafter the specific factor, is added to the washed virus tumors can be produced by injection into the experimental animal. These experiments show that two elements are necessary to produce a new growth: (1) a virus, because this element has been shown to be particulate and (2) a **chemical substance**, because this element is uninfluenced by centrifugation. Gye in the discussion of his paper says that the virus is the common factor present in all tumors under experimental conditions. An adjuvant, the specific factor, comparable to the aggressin in the toxin of *Bacillus welchi*, is necessary to bring about malignant transformation of a cell. It exhibits a strict specificity of species. Under natural conditions this specific factor may exist in some type of irritant of which a few are known, such as coal-tar. "The virus probably lives and multiplies in the cell and provokes the cell to continued multiplication."

Objections to the Parasitic Theory. The paper of Gye was published under rather remarkable circumstances in that an editorial note preceded the presentation in which the Editor of *Lancet* said that "the two communications * * * mark an event

in the history of medicine * * * and they may present a solution of the central problem of cancer." A long editorial summarizes the paper and accepts Gye's work in toto as demonstrating the cause of cancer. Critical analysis of the work, however, will not permit such a blind acceptance of the idea that the cause of cancer has been found. The virus has only been found in a few sarcoma of fowls. It has only been transferred to fowls, animals which exhibit a peculiar tendency to produce sarcomatous-like connective tissue overgrowth upon injecting other types of irritants. The spheroidal bodies demonstrated by the ultra-violet rays may or may not be the cause of sarcoma, but proof of this in the present report is certainly lacking. Mammalian tumors have not been reproduced. The abundant evidence that cancer is not parasitic in nature, as well stated in Ewing's (*Neoplastic Diseases*, p. 120) discussion on the theoretical objections to the parasitic theory has not been contradicted. These objections are numerous and weighty. It would indeed be a hardy proponent of the germ theory of the origin of neoplasms who would attempt to answer all the objections raised by Ewing to this theory or to attempt to explain such specific questions as the difference between anatomical and physiological characteristics of malignant tumors and known infectious processes; the reason for the occurrence of benign tumors; the method of production of such complex neoplasms as the teratomas arising from sex cells; or the stimulation of cells to growth and nutrition by a hypothetical parasite, contrary to all known forms of parasitism.

Despite the apparent hopelessness of answering many of the complicated questions as to the genesis of malignant tumors by postulating a germ origin of these neoplasms, nevertheless the work of Gye should not be condemned too hastily. Other great medical discoveries have taken years to prove and have been derided and denounced when first presented. Perhaps it may be that the presence of "a specific factor" in new growth can explain many of the as yet unanswerable questions to the problem and that a new field of investigation has been opened. Certainly in the past we have failed to establish the etiology of the disease and under these circumstances the too prompt condemnation of the claims of Gye is not justifiable. The work as it has appeared is largely in the nature of a preliminary report with more complete and fuller protocols to appear later, presented scientifically and with modesty. The

bombastic claims of such a wonderful discovery come largely from the journal which published the article and from the lay press.

KNOWN FACTS OF THE ETIOLOGY OF CANCER

There are two out-standing facts that have a definite bearing upon the genesis of cancer which are so very generally accepted everywhere that there is no longer any controversy about them. These two factors which exert a definite influence on tumor growth are (1) heredity and (2) continued irritation of the tissues.

Heredity. The influence of heredity on cancer has been shown by statistics and by reports of cancer occurring with a remarkable frequency in certain families. But medical statistics are notably unreliable and familial incidence of cancer might well be explained on the basis of coincidence which manifests itself in unusual ways many times. I know of a family of seven brothers and sisters, of whom three died of tuberculous meningitis among the four that are dead. The three members of this family who died as a result of this disease, died in adult life. Many years separated the deaths; one of the family died in Europe. The three members had lived in different cities for years. Only one had a pre-existing pulmonary tuberculosis that was recognized. There was no evidence of any kind that the disease was transmitted. Here is a very splendid example of coincidence in medicine. Surely no one would attempt to explain the occurrence of this unusual frequency of this type of tuberculosis on the basis of heredity.

The value of the evidence of the role of heredity in the predisposition to cancer has been greatly strengthened by experimental proof, so firmly confirmed, indeed, that this question no longer would seem to be considered sub judice. The most intensive, thorough and complete breeding experiments have been carried out by Maud Slye. In one of her last papers she writes that there have been performed over 41,165 autopsies on the mice she has bred, which mice show the presence of nearly 5000 spontaneous tumors (*Jour. Can. Res.*, 1924, 8, 240). In the light of these experimental studies, she says that "the inheritability of cancer and non-cancer tendencies in mice is a demonstration of these tendencies in man and in all other species which show cancer" (*Jour. Can. Res.*, 1922, 7, 107). Dr. Slye considers that this inheritance behavior of neoplasms is in exact accordance with the laws of heredity. Ewing (*Neoplastic Diseases*, Phila., 1922, p. 108) states

that geneticists do not accept all of Slye's conclusions. They acknowledge that there is a susceptibility to cancer in various families, but this does not follow a simple Mendelian procedure but probably involves multiple factors. It is obvious that some oncologists lay greater stress than do others on the role of heredity in tumor growth.

Chronic Irritants. The second important factor having more or less direct relationship to tumor growth is the influence of trauma on the production of such tumors. Acute trauma, it is well recognized medicolegally, is at times followed by sarcoma. Frequently repeated chronic irritation, on the other hand, is a frequent excitant to the development of cancer. The irritant may be mechanical, chemical, actinic or inflammatory in character. Evidence of chemical irritation is seen in the bladder cancer of anilin workers. Actinic irritation by roentgen rays produces the well known roentgen ray epithelioma. Much more frequent are the cancer cases that develop as a result of mechanical and inflammatory irritation, or both combined. So frequent are these conditions found that the term "precancerous condition" has been applied to them. They include the irritation produced in the mouth by decayed and roughened teeth, ill fitting false teeth and bridge work, the smoking of clay or even other types of pipes, of the presence of leukoplakia of the tongue; in the female breast, fissured nipples, retracted nipples, or Paget's disease are precancerous lesions of this gland; in the uterus, tears and lacerations of the cervix are conditions to be watched; while calculi in the ducts or reservoirs of the human body are potential sources of trouble. The Kangri burn cancer, an epithelioma of the skin of the abdominal wall in Kashmir Indians, is a classic example of cancer produced by irritation, in this case by the continual wearing of the Kangri, an earthenware vessel containing charcoal, carried directly against the skin as a protection against cold. To cite an example of experimental evidence of the influence of chemical and mechanical irritation: Yamagiwa and Murayama (Jour. Can. Res., 1924, 8, 119) report on the production of 23 cases of canceroid, a neoplasm mildly malignant, in 188 experiments by the injection of various tar-oil combinations into laboratory animals.

There are other conditions that are known to predispose to cancer. These include physiological involution of organs, notably the breast and prostate with their attendant mechanical and nutritional dis-

turbances. The metamorphosis of benign into malignant growths is well known. This is particularly likely to occur to moles, warts, nevi, which are subject to repeated trauma. Misplaced organs are subject to frequent trauma, hence the relative frequency of tumors of undescended testicles. Further comment on the effect of irritants seems unnecessary. The importance of precancerous lesions in leading to cancer needs no further emphasis.

The Diagnosis of Cancer. Let us now consider the early diagnosis of cancer, a question which is, I believe, beset with more difficulties than all other known problems in medicine. The time to treat cancer is while it is yet a purely local disease before it manifests itself in other localities removed from the initial lesion. Therefore it behooves us as practitioners of medicine to utilize all our knowledge, actually to apply what we know in order to give to our patients the full benefits of our information and to help solve the problem of determining when a cancer is present. In order to bring the subject of diagnosis of cancer clearly and didactically before you, I propose to present a few well known but frequently overlooked facts, to make some suggestions and to quote some aphorisms, which are succinct and trite.

Take a thorough history. "The first step, whether in the attempt to determine the cause of sickness in an individual or the nature of a new disease, is the collection of data," writes Foster (The Examination of the Patient, Phila., 193, p. 18), yet how frequently is this first step in diagnosis passed over lightly and without thought as a tiresome and time consuming drudgery and how frequently would a careful cross examination of the patient detect some symptom of importance?

Make a Complete Physical Examination. It is Cabot, I believe, who has said that more mistakes are made in medicine by failure to examine the patient than by lack of knowledge. This is an aphorism which hardly requires comment. Undress the patient and see and feel for yourself any abnormalities that may be present.

Use the sense of touch as well as the sense of sight. Many deviations from the normal are overlooked because being invisible they are not sought for by palpation. Even when visible, they are not felt. Localized indurations may be seen but their hardness, a characteristic of many early neoplasms, can only be appreciated by palpating them. Oral and rectal new growths are missed because of failure to examine

these cavities with the finger as well as by the eye.

Be wary of sores on the skin and mucous membranes which do not heal in a few weeks. These may be tuberculous, syphilitic or neoplastic, but in an elderly individual consider the latter possibility first. Bear in mind, moreover, that syphilis and cancer, tuberculosis and cancer may be co-existing or even cancer, syphilis and tuberculosis in the same individual.

Be wary of moles, warts, pimples that are exhibiting changes in color, size or appearance. Remembering what was said about precancerous lesions, the necessity for this advice does not seem pertinent. On the other hand, in the discussion on precancerous lesions, I did not wish to infer that every wart or mole must be removed. Remove all these skin blemishes, however, that are subject to acute trauma or chronic irritation.

Be wary of any new growth in the body. "Consider all new growths as malignant until proven benign."

View with suspicion any evidence of dysfunction. In an old person difficulty in swallowing may be the first sign of esophageal malignancy, hoarseness of laryngeal carcinoma, or constipation of colonic cancer.

Be wary of hemorrhage. Gross bleeding in an individual over 45 may be the initial symptom in carcinoma of any of the organs which provide some means whereby the secretions or excretions may exit from the body. Blood in the urine is extremely suggestive of cancer of the genito-urinary system. The occurrence of blood stools or bloody mucus in the stools should be followed by prompt visual and palpatory examination of the rectum. Irregular vaginal bleeding not related to the menses or coming on after the menopause is the earliest symptom of uterine carcinoma. Pulmonary hemorrhage may be the earliest manifestation of a malignant process in the lungs and should always be followed by roentgen-ray examination of the lungs. Such an examination should always be made before a radical removal of a breast. It will save the patient from the severe mutilating and unnecessary operation if pulmonary metastases are shown and it will save the surgeon from the discomfiture of having the patient die in a short time after the operation. Hematemesis may be the first evidence of gastric cancer. A former patient of mine, now living in Texas, twelve years ago had a severe hemorrhage from the stomach, a day or two after returning from

a long trip. He was operated upon in a few days. Well marked cancer of the stomach was the indication for resection of two-thirds of the organ.

Be wary of digestive symptoms in a patient over 45 previously free from indigestion. Cabot is the author of this somewhat modified dictum. It is a syndrome observed in only about 32 per cent of patients with gastric cancer, but of sufficient importance and sufficiently characteristic of this most frequent (42 per cent of fatal cancers in 1910) location of cancer to put one on guard.

Be wary of epigastric pain. In a series of 69 cases I reported upon (Penna. Med. Jour., May, 1913) some years ago, pain was the first indication of gastric cancer in two-fifths of the patients and was the second symptom noted by one-fifth of the sufferers.

Occult blood in the stools should be sought for in every patient with indigestion past a certain age. Under proper precautions, which include the omission of meat from the diet and the exclusion of possible foci of hemorrhage from the nasopharynx or lower intestinal tract, this test is of great value as corroborative evidence of gastric or intestinal cancer.

Be wary of abnormal discharges. Such abnormal discharges to be suspicious of, include leucorrhea in a woman past the menopause, discharges from the breast, or from the nose or ear.

Be wary of jaundice. Here, again as with bleeding, the occurrence of jaundice in a person of the cancer age should be regarded as sufficiently grave to warrant intensive study and even exploratory operation. I remember well three old ladies who lay side by side in my ward at one time each with jaundice and each with cancer, one of the head of the pancreas, one of the gall-bladder and one of the bile ducts. If the jaundice is of the obstructive type and gall stones are implicated, they should be removed. Says Bainbridge (The Cancer Problem, New York, 1918, p. 227) "Cancer of the liver, gall-bladder, bile ducts, and pancreas is thought to be initiated in a large proportion of cases in consequence of the irritation caused by calculi."

There is no specific laboratory test for cancer. Many so-called specific tests for cancer have been proposed and just as many have been found wanting. Studies in blood sugar concentration in cancer have recently aroused interest as a possible test for the disease, but Kelly (Am. Jour. Med. Sci., 1925, 169, 216) has studied a large number of cases and reports that the test

is only of suggestive value and in no way specific. The only laboratory aid of any value is secured by microscopical study of the specimen removed by biopsy. Here let me warn you of the danger of removing a suspicious growth or gland for microscopical examination, unless you are prepared to do an immediate radical operation at the time. Incision into a cancer is likely to result in spread of the disease and to make subsequent cure by radical operation impossible. The roentgen ray is of great value in many cases. This valuable adjuvant to diagnosis should be employed always when there is suspicion of cancer of the lungs, esophagus, stomach and intestine.

The typical symptoms of cancer are those of advanced cases. The so-called classical symptoms of cancer as portrayed by the

text books are found only after the disease has progressed, usually so far as to obviate any possibility of cure by operation, or by radiotherapy in the exceptional case. "The more certain the diagnosis, the less the probability of cure."

SUMMARY

I have discussed today the subject of cancer briefly from the historical standpoint; mentioned the more important theories and known facts of the cause of the condition, and expressed my opinion of the most recent work in cancer etiology. I have attempted to point out some of the earliest manifestations of the disease. And now permit me to close with the assertion that early cancer is never diagnosed without the most meticulous attention to the history and to the examination of the patient.

RECENT VIEWS OF CANCER TESTED BY OBSERVATION ON ITS OCULAR MANIFESTATIONS

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Cancer is of interest to all of us: As a condition that causes an increasing number of deaths; one that presents many difficult and important problems of diagnosis; that is held to demand the most radical procedures of surgery, and often baffles us in spite of them; that is not yet controlled by prophylactic measures; and that brings a death so dramatic, inevitable and often painful, that it is greatly dreaded by patients and may cast somber shadows across the closing years of our own lives.

The Lancet for July 18, 1925, contained a paper on, "The Etiology of Malignant New Growths," by Dr. W. E. Gye, which an editorial in that number of the Lancet says "marks an event in the history of medicine. For these observations may, we believe, represent a solution of the central problem of cancer." Dr. Gye states:

"These researches have led me to look upon cancer—using the term in its widest sense—as a specific disease caused by a virus (or group of viruses). Under experimental conditions the virus alone is ineffective; a second specific factor, obtained from tumor extracts, ruptures the cell defences and enables the virus to infect. Under natural conditions continued "irritation" of tissues sets up a state under which infection can occur. The connection between the specific factor of a tumor and an irritant remains to be investigated. Some of the relatively unimportant "irritants" are known, such as coal-tar, paraffin oils, etc. The virus probably lives and multiplies in the cell and provokes the cell to continued multiplication."

In the same number of the Lancet, Mr. J. E. Barnard published a paper on "The Microscopic Examination of Filterable Viruses," of which the Lancet editorial says:

"In this he has applied the optical methods elaborated by him for the study of the organisms of bovine pleuro-pneumonia, the largest of the known filter-passing viruses, to the study of the cancer viruses cultured by Dr. Gye, and shows that he has succeeded in rendering the cancer virus visible and even in photographing it. This is in itself a great achievement. The results of Mr. Barnard's observations so closely correspond with the experimental results obtained by Dr. Gye that the existence of a living cancer virus would appear to be established."

In the Lancet for July 25, an editorial points out the limitations that narrowly hedge the results obtained experimentally by Dr. Gye and Mr. Barnard, and the many lines along which experimental work still must be done; and the various possible explanations that may be given of their observations, suggesting lines along which experiments may proceed before "the fundamental facts" may be applied in human experience. In view of the importance of this subject, in view of the number of men and women now suffering from cancer and depending on us for help and guidance in their last great struggle for life, it is inevitable and right that we should consider these new views of cancer, should discuss them, should try to weigh their

importance and see their application by the light of our own individual experiences.

NATURE AND ETIOLOGY OF MALIGNANT TUMORS

It has been said that cancer is cell-anarchy. Certainly it is a loss of all proper relation between cell rights and duties, between the nutrition, function and distribution of the different cells; a condition in which all subordination to the general good is lost; and each cell, or band of cells, greedily appropriates the sustenance and the space which, in the normal body, belong to other cells that have a function to perform for the general good. This anarchy continues until the sacrifice of the general good proceeds to inevitable general death. Malignant neoplasms are more than cell-anarchy; they are manifestations of cell-atavism. Each malignant tumor is a mass of cells that have fallen, gradually through many cell-generations, to a lower primitive level of life. These cells have assumed more primitive forms, they devote their energies entirely to the primitive functions of reproduction and nutrition. Each cell does everything for itself, only capable of existence while its immediate environment remains sufficiently suited to its needs, while nourishment and the proper temperature are secured for it by the parts of the body, the great commonwealth of cells, that still perform their especial functions for the common good.

What kind of influences are responsible for this atavistic deterioration of the cell stock? That is the question of the etiology of cancer. Are they perturbations similar to those which cause other congenital variations both good and bad? Are they such as are transmitted by heredity and emphasized by in-breeding? Are they started by local injury or irritation? Are they produced as late sequels of some, or many, antecedent diseases? Are they started by starvation, local or general; or by removal of influences essential to normal development, like the endocrins? Are they produced by the invasion of living germs that invade the body, and continue to exert on generation after generation of cells, the influences that continue this development and reproduction along abnormal lines?

The experimental facts regarding cancer have all been noted by relatively few observers, in the last years. Some of the most important are yet unconfirmed by collateral investigations. The last reported are a pushing out into a new field, the investigation of filterable viruses, invisible to the ordinary use of the microscope. All

that we as clinical physicians and surgeons, or workers in x-ray or pathological laboratories, can do with these reported results of experiment, is to judge from the very large volume of recorded clinical and laboratory experience the probabilities of the etiology of malignant disease.

GENERAL COURSE OF MALIGNANT DISEASE

The course of the primary lesion of cancer as clinically observed in men, whatever the tissue in which it is situated and whatever its classification among the forms of malignant diseases, may be divided into these stages:

1. A period during which it exactly resembles in origin, appearance, histologic structure, and apparent tendencies, a non-malignant lesion of the same part. For many cases this period is a long one. It often lasts longer than all the subsequent course of the disease. For some forms of cancer and in some parts of the body, it may last the greater part of a life time, as in cases of angiomas, melanomas and warty lesions, which occur where they can be observed from the first, and their course certainly known, and ultimately become malignant. In deeper situations, where the lesion is not open to direct observation, the obscure and confusing symptoms, that often continue for a long time without awakening any suspicion of malignancy, point to the same stationary or almost stationary, long, non-malignant period.

2. A period of increased growth and increasing rapidity of growth, which arouses the suspicion of possible malignancy, and suggests excision or destruction of the lesion, as liable to further increase and possibly malignancy. The tumors removed at this stage may be pronounced malignant or non-malignant by the pathologist, but they show cell poliferation with increase of the tissue or tissues in which the growth originates, and beginning invasion of adjoining tissues.

3. In the third stage, the increase in tumor and resulting symptoms, is more marked and rapid and continues increasingly so. Beginning malignant disease is the clinical diagnosis and the pathologic diagnosis of removed tissue supports it.

4. Foci of similar disease begin to appear in neighboring lymph glands, and more distant organs, while the primary lesion continues to extend with increasing rapidity. The malignancy of the lesion is certain.

5. The general health becomes noticeably impaired, metastatic growths increase in number and size, the primary growth invades adjoining tissue more rapidly than

ever, cachexia develops and death terminates the course of the disease.

The course thus outlined may be modified or interrupted by treatment, by intercurrent disease, inflammation, or by obscure or unrecognized causes. Excision, if done completely and early enough, seems to effect a permanent cure, even tho similar lesions may subsequently arise elsewhere in the body. At later stages the course may be apparently delayed or suspended, and the general condition of the patient temporarily improved, by removal or destruction of the great bulk of the diseased tissue. But where the removal or destruction has been incomplete renewal of the growth soon occurs, and progress toward the fatal ending is ever more rapid.

The anatomic classification of malignant disease has not been wholly satisfactory, and is not very helpful toward an understanding of its essential character. The names and groupings of the various lesions have been changed, generally for good reasons, yet not so convincingly as to secure complete agreement among careful students of histopathology. Hyphenated names like myxo-sarcoma, or basal-cell-carcinoma are very widely used. Often they indicate attempted refinements of classification that are of doubtful permanence or service; or attempts to make a place for a particular case that does not fit into any accepted system of classification; or they are confessions of uncertainty as to the real relationships of the growth in question; or admissions that the same tumor belongs to two classes, usually regarded as distinct.

The report of one pathologist, placing a certain case under a particular heading, is often met by dissent from another pathologist, who, from the published account would place it elsewhere. Any attempt to formulate a conception of the essential nature of malignancy must cut across these lines of classification and subordinate them, to a considerable extent, to certain broad clinical tendencies and relationships. It has recently been argued (Knight, *Journal A. M. A.*, v. 83, p. 1062) that in what have been regarded as tumors of mesoblastic origin the melano-sarcomas, the pigment melanin, which has given the name to the class, is not of mesoblastic origin at all; but is taken up by the tumor cells acting as phagocytes, having been formed only in epithelial cells.

In view of the uncertainties that still surround the histopathology of malignant disease, of the indefiniteness of our conception of a filterable virus unknown except by its effects, of the gap that exists

between what has been ralled sarcoma (or cancer) of rats, or chickens and the condition known as sarcoma or carcinoma of men, it would seem wise to base our general ideas regarding malignancy chiefly on the long known and widely observed clinical pathology, rather than on the minute anatomy of lesions observed with the microscope, or the first interpretations of the results of laboratory experiments in comparative pathology.

OCULAR MALIGNANT DISEASE

This critical review of recent hypotheses of the essential pathogenesis and nature of cancer is made from our knowledge of malignant disease as observed in the eye and adjoining parts, because the writer is more familiar with such manifestations than with those in other parts of the body. Also, because these manifestations present a wide variety of lesions that have little in common except their tendency to malignancy and their general clinical course; and because these lesions have been better studied in the eye, as to antecedents, clinical manifestations and general course from their earlier stages, than have similar manifestations of malignant disease in any other part of the body. The method pursued will be to ask, whether these recently promulgated views of the essential nature of cancer harmonize with the facts widely observed as to the clinical manifestations and course of each separate form of malignant disease commonly observed in this region, particularly as to origin in hereditary or congenital tendency, specific infection, local irritation, or general impairment of nutrition through other agencies.

Epitheliomas.....In one year (Oph. Year Book, 1908) Schultz-Zeheden reported three cases beginning in the lids and extensively involving the face, that had continued four, fifteen and twenty-one years respectively. Zentmayer, one that had started from a mole eight years before; de Schweinitz, one several years before. Maucione (*Ophth. Year Book*, vol. IX, p. 311) reported the case of a woman who when a young girl had noticed a small nodule; at the age of 35, it had increased to the size of a hazel nut and was removed. At 37, another nodule had appeared near site of the first and at 43, it was the size of an almond. It was examined after removal, and pronounced a combined epithelioma and basal-celled carcinoma. Ring reported (*American Journal of Ophthalmology*, v. 1, p. 57) the case of a man who had an extensive epithelioma removed from the lower lid at the age of 50, and at 57 developed an epithelioma on the cheek, that did not yield to

x-ray treatment for several years but was removed at the age of 65 by caustics. Epitheliomas on or about the eye very frequently come with the history of a small benign lesion stationary for many years. Then enlarging, presently growing more rapidly, destroying the contents of the orbit and attacking bones of the skull. Such lesions work great local destruction before they metastasize, but they do give rise to metastatic tumors, and when inadequately treated, they produce a cachexia and end like other cancers.

Xeroderma pigmentosum, marked by irregular epithelial thickening and pigmentation of the skin of the whole body is particularly liable to result in epitheliomas or carcinomas of the lids, often multiple and ending in death. Cuperus reported a case beginning at three or four years, and ending with ocular cancer and death at ten years of age. Many of these cases are in families where two or more members are affected. Velhagen saw four cases in cousins. Pergens saw four cases in one family with a history of distant consanguinity of the parents, (*Ophth. Year Book*, vol. 11, pp. 69 and 284).

Papilloma (not luetic) starts usually in the conjunctiva and extends over the cornea. Many cases give a history of recurrence, with each time more rapid and extensive growth. The first tumors show the structure of benign papilloma. Later they show epithelioma or carcinomatous changes. Wagenmann reported such a case (*Deutsche Med. Wochenschr.* v. 33, p. 318). Cosmetatos described a tumor starting from a papilloma but undergoing epitheliomatous degeneration (*Ophthalmic Year Book*, v. 5, p. 86). Ray and Verhoeff describe what they call "papillary epithelioma" and Pascheff states papilloma may degenerate into epithelioma (*Ibid.*, p. 200 and 203). Coover excised a tumor that covered most of the cornea eight months after removal of a pterygium. It showed the typical structure of a benign papilloma. Eleven years later he enucleated the eyeball for a much larger recurrence, which proved to be a basal-cell epithelioma.

Carcinomas. Those arising from the glands of the lids, conjunctiva, the lacrimal gland, etc., run the course often observed in other parts of the body; an apparently benign tumor, long stationary, then growing slowly and later more rapidly, invading adjoining parts, and later causing metastatic lesions and still later cachexia and death. Such tumors have many times followed removal of supposed chalazia, and

clinically it seems established that a true chalazion may become a cancer.

There is little about primary carcinoma of the eye and orbit that differs from carcinoma in other of the more accessible parts of the body. But carcinoma of the uveal tract is practically always metastatic and throws an interesting light on the history of primary carcinoma in other parts of the body. It occurs mostly in the posterior part of the eye as a flat, light colored, non-vascular disc, which rapidly impairs vision. In 1903, Parsons, Oatman and Krukenberg collected forty-one cases of carcinoma of the choroid (*Ophth. Year Book* (v. 1, p. 176) in at least seven of which the primary growth had not been recognized, and the patient was believed to be in good health when the eye became involved; in twenty-seven, the primary tumor was in the breast. So that half the cases where it was in deeper organs, were unrecognized until metastasis had impaired the vision, which was on an average, six months and never more than two years before death. Uhthoff saw a case secondary to intestinal and Holden one with ovarian cancer (*Oph. Year Book*, v. 2, p. 190). Paul reported a case where the primary growth in the stomach was found by autopsy, one month after the secondary growth had been noticed in the ciliary body, (*Ophth. Year Book*, v. 3, p. 199). Michel reports the primary growth in the anterior mediastinum; the case had been diagnosed as one of Hodgkin's disease. Proctor and Verhoeff (*Oph. Year Book*, v. 5, p. 81) report a case of secondary carcinoma confined to the iris, and removed by iridectomy. Vision remained good until the patient died six weeks later of abdominal cancer. Weeks, (*Oph. Year Book*, v. 12, p. 303), removed an eye from a woman of 46 with carcinoma of the choroid, and no appreciable cancer elsewhere in the body. Three months later autopsy revealed carcinoma of the lung. In one of Greenwood's four cases (*Oph. Year Book*, v. 9, p. 316), carcinoma of the prostate was discovered at the autopsy. In Maggiore's case of carcinoma of the choroid, the primary growth was found in the liver (*Oph. Year Book*, v. 20, p. 340), and in one of Usher's three cases, it had not been found when the case was reported. A case seen by the writer was probably of this character.

Sarcoma. Ocular sarcoma, under whatever hyphenated or other name it happens to be reported, endothelioma, etc., is a most interesting condition. There is time here to refer to only one interesting fact regarding it—the long time it may be ob-

served before it becomes evidently malignant; or before secondary growths are seen or are fatal after the enucleation of the primary growth. Hirschberg, (*Oph. Year Book*, v. 2, p. 189) saw recurrence in the orbit six years after enucleation. In four of sixteen cases, death occurred from metastasis after two years, two years and nine months to ten years and six months. Kellerman reports recurrence of an epibulbar sarcoma twenty-three years after it was originally noticed (*Oph. Year Book*, v. 6, p. 314). Groenow reported what he thought sarcomatous change in a melanoma of the iris, which did not change in size for twenty-two years and then gradually increased for five years until it caused blindness. Roy saw sarcoma developed at 45 from an eye shrunken from childhood following purulent ophthalmia (*Oph. Year Book*, v. 7, p. 308). Zentmayer's patient (*Oph. Year Book*, v. 1, p. 306) had detachment of the retina when first seen and two years later the eyeball was enucleated; two and a half years after that sarcoma recurred in the orbit. Exenteration of the orbit was followed in three months by another recurrence. In the case reported by Finnoff and myself (*Trans. Amer. Ophth. Soc.* 19) it was fourteen years, after detachment of the retina had been noted by Gifford, before the eye was enucleated for choroidal sarcoma. Moore reports a case (*Oph. Year Book*, v. 11, p. 367) in which the eye was enucleated for spindle cell died of melanotic abdominal tumors, altho the orbit remained free from recurrence. Zentmayer (*Oph. Year Book*, v. 13, p. 323) saw a case in which nine years after the first symptoms were noticed, enucleation showed a spindle cell sarcoma. Crigler found large round cell sarcoma in an eye blinded thirty years before by injury (*Oph. Year Book*, v. 19, p. 315).

Other Forms of Malignant Disease:—

Perhaps the most interesting form of ocular cancer is retinoblastoma (retinocytoma, neuroepithelioma), the one that has been incorrectly called, by Virchow, glioma of the retina. It is not anything like glioma of the brain, or other parts of the central nervous system. It is primary only in the retina, extends in the orbit, spreads by metastasis to every organ of the body, causes typical cachexia, and, if unchecked by early removal of the eye, or destruction of the lesion, ends in death. It is congenital, is never seen in adult life, and is an hereditary or familial disease. That it should arise from infection by a living virus is scarcely conceivable; but it shows all the characteristics of malignancy.

Chloroma seen, usually, in early life, is certainly malignant, but runs a more acute course. It is possible to understand that it might be due to infection. Hypernephroma about the eye is of course always metastatic. But these forms of malignant disease only support and emphasize the conclusions to be drawn from the more common, more generally known forms of cancer.

CONCLUSIONS

The conclusions of Gye are that malignant disease arises from the conjunction of two factors: (1) A filterable virus, which may be derived from another species of animal, or another kind of cancer; (2) A specific factor, that must be developed from the cells of a similar lesion, in an animal of the same species.

As to the filterable virus, I can only try to keep an open mind, with a strong predisposition to skepticism. The ultra-microscope and the photographs of Barnard doubtless show something. But whether it is a living virus, or something else is very open to doubt. The little that we know about diseases probably caused by filterable viruses seems to be against this supposition. They are mostly acute infections, causing marked pathologic reactions throughout the whole body, from the start. The chronic infections, characterized by their local lesions, are due to bacteria of good size, like tuberculosis, syphilis, leprosy, or to still larger living organisms, as malaria, blastomycosis, kala azar, trichinosis, hydatids, etc., etc. It is, to me, impossible that one filterable virus could cause epithelioma and sarcoma; or that any infection should cause retinoblastoma, or that a virus should cause a lesion, apparently benign for twenty, thirty, or forty years and then showing evidence of malignancy. The supposition that pathologic change must exist, before the infection by a filterable virus can occur, seems to relegate the "virus" to a secondary place in etiology. If it has any share at all in producing malignant disease in man, this must be a secondary one, like that of such irritants as tar, paraffin oils, the x-ray, the possible role of ultraviolet radiations, in causing xeroderma pigmentosa.

But in discovering the existence and importance of what he calls the "specific factor" of malignant disease, Gye has thrown a great light on the pathology of cancer. If we admit that cells, thru a long course of morbid development, acquire the power to form a substance to which the cancer cell is immune, but which is able to overcome the resistance of normal constituents

of the body, enabling the cancer cells to penetrate neighboring tissues, and through the circulation to prepare other parts of the body for the implantation of cancer colonies or metastatic lesions, and finally causing general cachexia and death, we have an hypothesis that throws a flood of light on the slowly accelerating course of

malignant disease. It suggests the mechanism of such phenomena as that of generalized tuberculosis following years of focal tuberculous lesions. Let us review in our minds the facts we have observed regarding malignant disease, and see if this hypothesis does not agree with them, unifying them, and furnish a philosophy of malignancy in general

THE USE OF IODIN IN THE TREATMENT OF GOITER

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It shall be my purpose in this discussion to bring out the indications for the use of iodine in the treatment of diseases of the thyroid gland, to evaluate its usefulness in the different types, and especially to emphasize the importance of Lugol's solution in the preoperative and postoperative management of exophthalmic goiter cases.

For half a century, physicians and surgeons have made claims relative to the value of various iodine preparations in the treatment of goiter, only to have their claims contradicted subsequently by equally good men. The reason for this conflict of good opinion has become apparent in the last few years. It is not because the doctors making these reports were unlearned, nor is it because they were poor observers. The reason lies in the fact that until very recent years all cases were treated on the basis of an enlarged thyroid gland, commonly called goiter, and the main attempts at distinction of the various types were based largely on the physical characteristics of the enlargement rather than on differences in the symptom syndromes. Frequently then, occasionally even today, cases of exophthalmic goiter were overlooked because the patients had neither an enlarged gland nor exophthalmos. Modern treatment is based, not upon the finding of enlarged glands or goiters, but upon the recognition of certain symptoms and physical syndromes which make up a number of definite distinct disease entities of the thyroid gland.

Today, we recognize and treat disorders of the thyroid gland on the same basis that we do disorders of the kidney or any other organ; viz., upon the recognition of a number of different diseases, based upon certain groups of symptoms and physical characteristics. It is just as fallacious to treat every patient having an enlarged thyroid gland with iodine or surgery or x-ray, as it

is to treat every patient having an enlarged kidney with urotropin, or x-ray or a nephrectomy. The value of each remedial agent and its limitations in the different thyroid diseases should be thoroughly recognized, but his ideal can only be reached by a thorough understanding of the separate, distinct thyroid disease syndromes.

It is not my purpose, and time will not permit a discussion of the details of diagnosis of thyroid diseases, but I may state briefly that we see the following types of cases in the southwest: Colloid or simple goiter of adolescence; colloid goiter with hypothyroidism; adenomatous goiter; hyperthyroid adenomatous goiter; hypothyroid adenomatous goiter; exophthalmic goiter; cancer of the thyroid gland; thyroiditis; thyroiditis with hyperthyroidism; myxedema; pseudo-myxedema and myxedema with artificial hyperthyroidism. The most common varieties with which we have to deal in this part of the country are simple or colloid goiter of adolescence; adenomatous goiter, with or without hyperthyroidism; and exophthalmic goiter.

Of the three varieties common in Texas, the adenomatous and the exophthalmic are by far the most prevalent. A number of girls and young women have the colloid type, but they compose less than five per cent of the total number of goiters seen in this state. This is quite a different ratio from that observed in the Great Lake and Middle Western States. There, the number of adolescent colloid goiters is in the preponderance. About three years ago, Babcock of Philadelphia called attention to this goiter type ratio, comparing the Atlantic seaboard states with the middle western states. We have observed that the ratio is even lower in Texas.

The cause of this ratio of distribution of colloid goiter compared with other types of goiter has been discovered in a consideration of certain facts which have been

worked out by government scientists and others. A survey of the iodine content of samples of soil from various regions of the country shows that soil nearest the sea-coast has the greatest proportionate quantum of iodine, whereas this progressively decreases farther inland. The same principle holds true in regard to the water of various parts of the country; however, the water from certain streams and lakes contains a much larger amount of iodine than that of others. A survey of thyroid disorders shows that they are prevalent inversely in proportion to the iodine content of the soil and water. The prevalence of colloid goiter bears the closest inverse relationship to the iodine content, whereas other types seem more directly related to the distribution of population.

Kimball and Marine, in their brilliant work during the past ten years, have definitely proven that the appearance of colloid goiters is dependent on a deficient iodine supply, and have shown that they can be prevented by furnishing school children with the necessary iodine. This has been given in the drinking water, the table salt or in individual doses; furthermore, it has been found by numerous investigators that the majority of all adolescent colloid goiters can be made to disappear rapidly by the administration of iodine. This can be given in almost any form but the most satisfactory preparations are ferrous iodide, sodium iodide and potassium iodide. Small doses every day over a period of two or three months will usually suffice. Only four per cent of the colloid type turn into exophthalmic goiter and only about six per cent remain after the age of twenty-five. This means that about ninety per cent of all colloid goiters disappear spontaneously before the patient is twenty-five years old, regardless of whether or not iodine is given. There are no symptoms of colloid goiter as such, other than those due to pressure. Therefore, x-ray and surgery are absolutely contraindicated in this type.

By adenomatous goiter is meant a thyroid gland containing one or more encapsulated tumors. These tumors may be large or small, hard or soft, cystic or calcified; but they all originate from a single source; viz., a cut off or encapsulated group of thyroid cells. X-ray men who have treated large numbers of these cases have come to the conclusion that x-ray does them no good; iodine in any form is absolutely contraindicated. It will make the non-toxic ones toxic and aggravate the symptoms of the toxic ones. Surgical removal is the only form of treatment indicated in either the toxic or non-toxic variety.

Exophthalmic goiter is one of the most difficult of all diseases to treat successfully. The diagnosis is easy in the majority of cases and the only disease of importance from which it must be differentiated is toxic adenomatous goiter. In many instances, however, this differential diagnosis is extremely difficult to make, but it is of vital importance. When the diagnosis is established, the physician's troubles are just beginning. The character of the disease and its symptom manifestations make the patient hard to control. Furthermore, the average good doctor is confronted with three well-known methods of treatment, but the advocates of each type of treatment are so vitriolic in their condemnation of the other types that the physician is in a quandary. The truth of the matter is that each one of the three types of treatment have certain merits.

Medical treatment alone often seems successful, because the fact is not recognized that one of the characteristics of an exophthalmic goiter is its tendency to remissions. The symptoms come in waves and if medical treatment is started at the crest of the wave of hyperthyroidism or during the descent, the inference is naturally drawn that the patient has improved as a result of the treatment. If the next wave of hyperthyroidism is due some months off the patient is pronounced cured. The unfortunate part of it is that the vast majority of the cases have a return of the symptoms, or another wave of hyperthyroidism, in from six to nine months. As a rule they are again treated medically, inasmuch as the previous medical treatment seemed to do them so much good. They may or may not again get temporary relief, depending upon how intense the wave of hyperthyroidism happens to be. Sooner or later, however, one of two things will happen—they will seek some other type of treatment or they will die in one of the very intense attacks. This does not mean that there is no good whatsoever to be derived from medical measures. Almost every exophthalmic goiter case is benefitted to a certain extent by being put to bed, with absolute rest, without company and without disturbing external influences.

Prior to the time when we started the use of Lugol's solution, the most of our patients treated in this manner had some decrease in their symptoms, and they had an average drop in metabolism of ten per cent; however, it took an average of one month to obtain even this beneficial result. About ten per cent of the patients became worse before the period of one month was up, and two patients died in the hospital on this

type of so-called medical treatment, one in five weeks, and one in seven weeks. From our observations and from the statistics of other clinics it would seem that medical treatment alone subjects the patient to a very prolonged period of suffering without promising much in the way of permanent relief.

The x-ray treatment of exophthalmic goiter has certain good points. If the case is carefully handled and if only small doses are given at frequent intervals, eighty-five to ninety per cent of the cases eventually show some improvement and sixty per cent are permanently cured, i. e., over a three-year period. These figures represent the statistics of x-ray men who are treating the greatest number of cases in this country and in Europe. Prior to the advent of Lugol's solution as a preoperative treatment, it was claimed, and probably with justification, that x-ray treatments would prepare a certain number of cases for operation sooner than could be done by medical treatment alone; however, it has no usefulness in this field since we have learned the value of Lugol's solution.

The disadvantages of x-ray treatment are as follows:

1. It offers only a ninety per cent chance of improvement and only a sixty per cent chance, at best, of permanent cure.

2. On account of the danger of big doses producing severe reactions, the treatment is necessarily quite prolonged. Small doses must be given over a long period of time.

3. Even its most optimistic advocates do not claim to get marked improvement in less than four months, nor permanent improvement in less than six to nine months.

4. A majority of the cases claimed as permanent cures underwent treatment for one year, and many required treatments during a two year period.

5. During this prolonged period of treatment, the patient is subjected to the rigors of a poison constantly thrown into the blood stream, and the consequent damage to the heart, kidneys and nerves.

6. The prolonged period of disability is an economic waste both from the standpoint and the patient's family, and causes not a few families to land on the rocks of financial disaster.

Because of the foregoing disadvantages and the fact that there is a better method of treatment, offering a much higher percentage of cures, we are opposed to the use of the x-ray for exophthalmic goiter except in those rare cases where the patients, having first been made thoroughly familiar

with all of the facts, prefer to take these chances.

The surgical treatment of exophthalmic goiter has been by far the most successful type of treatment, and the percentage of cures has been further increased since Plummer first called attention to the beneficial effects of Lugol's solution as a pre-operative measure. The Mayo Clinic's operative mortality prior to the use of Lugol's solution was about three and two-tenths per cent. During the past year it was eight-tenths of one per cent. The operative mortality of various other large clinics averaged around three or four per cent and our mortality at the Scott & White Clinic, was three and five-tenths per cent. Crile of Cleveland claimed a mortality of less than three per cent, but it must be remembered that his statistics were based on toxic goiter in general, including many toxic adenoma cases. With an average recurrence of four per cent it will be seen that ninety-three per cent of all cases were permanently cured by surgical measures.

About three years ago, Doctor Plummer of the Mayo Clinic discovered that Lugol's solution, in contradistinction to all other preparations containing iodine, had a very beneficial effect on patients with true exophthalmic goiter. Soon afterwards he called attention to this discovery. Men in other clinics began its use and obtained similar results. Why this particular preparation is found efficacious, when other forms are not, is unknown. The supposition is that the internal secretion from an exophthalmic goiter causes the patient to use up iodine faster than he normally takes it in and that iodine in the form of Lugol's solution is more rapidly absorbed than other forms.

Regardless of the why and wherefore, it is now a known fact that if exophthalmic goiter patients are given Lugol's solution every day they soon improve. All of the symptoms decrease in intensity and the metabolism drops. The average patient begins to improve markedly in seven days and the maximum improvement is noted between the tenth and fourteenth day. After this period, the symptoms will remain stationary for a time, but sooner or later, will begin to increase again.

This period of partial remission of symptoms varies from two weeks to three months and the quantity of Lugol's solution administered does not seem to have much effect on it. The effect on the metabolism is about the same as on the other symptoms. There has been an average drop of twenty-seven per cent in two weeks

time in our cases, the minimum being eleven per cent and the maximum forty per cent. This compares most favorably with the ten per cent decrease in metabolism on the former type of preoperative treatment.

When we first began its use, we did so very cautiously, giving only ten drops once a day. As time went on we gradually increased the doses and, during the past year, we have been giving on the day of entry twenty-five drops three times a day and then fifteen drops three times a day thereafter, and the average decrease in metabolism has been thirty-three and two-tenths per cent during the first two weeks. Many of the patients, however, show this decrease in ten days.

Since we started the use of large doses of Lugol's solution, one year ago, we have noted the following results:

1. A more rapid and a greater improvement of all symptoms, including the marked average drop of thirty-three and two-tenths per cent in the metabolic rate.

2. A decrease in the length of time necessary to get the patients into safe condition for operation. The average preoperative period of treatment prior to its use was thirty-one days. The average preoperative period for the past year has been fifteen days.

3. The ability to do thyroidectomies safely without preliminary ligations. In thirty-nine exophthalmic cases operated upon in the past year, we deemed it necessary to do preliminary ligations in only two cases.

4. A marked decrease in reactions of hyperthyroidism after operation, and a consequent decrease in the period of con-

valescence. Many of the patients who had metabolic rates above plus thirty at the time of operation were given Lugol's solution after operation and this, we believe, has also decreased postoperative reactions. We have given it by rectum in glucose solution, i. e., five per cent glucose solution six ounces, to which is added Lugol's solution one dram, given every six hours) until the patient was able to swallow well; and then by mouth, (fifteen or twenty drops t. i. d. for the first four or five days).

5. It has been a factor in our continued low mortality. We have done three hundred twenty-seven operations for goiter of various types in the past five years, with five postoperative deaths; i. e., a mortality rate of one and five-tenths per cent. All of the deaths occurred in exophthalmic goiter cases, all followed ligations and all occurred within a period of two weeks after operation. In the group of exophthalmic goiter alone, there were two hundred thirty-one operations with the aforementioned five deaths, making our operative mortality for exophthalmic goiter in the past five years only two and one-tenth per cent. During the past three years, we have had no deaths following operation.

CONCLUSIONS

1. Iodin preparations are useful, both in the prevention and in the cure of colloid goiters.

2. Iodin in any form is not only useless, but is positively harmful, in the treatment of adenomatous goiters.

3. Iodin in the form of Lugol's solution has a very distinctive usefulness in the preoperative and postoperative treatment of exophthalmic goiter cases.

THE SIGNIFICANCE OF THYROID DISORDERS TO THE GENERAL PRACTITIONER

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It is of course not the intention of this paper to go into the detail of thyroid disorders and their treatment. The writer well knows that such a treatise would require a large volume, as well as one far more capable than himself to produce it. Rather, it is the intention of this paper to stress the importance of this subject to the man who sees thyroid disorders in their earliest stages, or in the stages where medical management is most effective. Hence, the paper is addressed to the general practitioner.

The subject seems timely for several reasons. One reason is that there is new knowledge about thyroid disorders and their treatment, which needs to replace the old and numerous text book classifications of these diseases. A second is, that there is wide spread vogue at present of iodine medication in the treatment of goiters, and unless the types of goiter are better understood, iodine is likely to be misused with serious consequences, and conversely, its use may be neglected in cases where at present it seems actually curative. A third

reason is, that it has seemed to the writer that goiters and hyperthyroidism are receiving all the study of thyroid disorders to the exclusion of hypothyroidism which, though not as malignant as the goiter, is estimated on the whole to be seven times as common.

HYPOTHYROIDISM

Hypothyroidism is that condition in which the thyroid gland undersecretates. Its extreme phases are observed in the child as cretinism and in the adult, as myxedema. These syndromes, being the extremes of hypothyroidism, are the rarest forms encountered. The mild and abortive forms of either hypo or hyperthyroidism may be seen a thousand times by the close observer before one case of these extremes is encountered.

AN EXTREME CASE

Baby O, female, age three years, was slow to walk, could not talk, dentition was greatly delayed, its tongue was thick and protruded, saliva constantly dripped from its mouth, and it had a dull idiotic expression. The extremities were short, its fingers were stubby and hands rather thick and broad. Its abdomen protruded.

The child was placed on ascending doses of thyroid extract, and closely observed until the physiological effect of the drug was noticed. It was then placed on the optimum dose which proved to be two grains three times daily.

The child grew in height on the average of one inch per month for about six months, or until its normal height began to be approached, then the growth was less. All other symptoms improved in proportion.

Though this case is an extreme one, its recognition was too late, in that serious trophic changes had already taken place. The responsibility of the family physician is great in such cases, where much can be done if the case is early detected. Beware of the possibility of such a condition when there is marked underdevelopment and seeming idiocy in the infant.

A LESS MARKED CASE

Baby H. D., male, age three months, whose mother was herself a sufferer from hypothyroidism and unable to nurse him, could not thrive in spite of the most careful and approved methods of infant feeding. Coincidentally with the administration of one-tenth grain doses of thyroid extract three times daily, he began to thrive.

This type of case is far more often encountered than the above type, and is frequently not recognized.

AN ADULT CASE

Mrs. H. A. D., age 36, is six months pregnant, is very obese and has marked supraclavicular fat pads. She complains of numbness in her hands and feet, dyspnea, headaches, and is tired and nervous. She calls over the telephone to ask why she should be troubled with a disturbance of vision, almost to the extent of blindness. Her urine contained albumin and casts, and her systolic blood pressure was 180.

She was immediately placed in bed and treated for uremia by the usual methods including the strictest of nephritic diets. She improved slowly for about two weeks, but seemed at this time unable to make further progress. Because she had some of the stigmata of hypothyroidism, she was given a carefully observed tolerance test of thyroid extract. The dose given was one-half grain every three hours the first day, and one grain every three hours the second day. Near the end of the second day she was thought to show evidence of a slight reaction to the drug. She was then placed on one grain three times daily. Her condition began to improve at once, and the patient remarked that if such treatment continued its good effect, she would gladly take it the rest of her life.

This case, and others in the writer's experience, indicate to him that many ills both acute and chronic, while not due solely to hypothyroidism are often greatly aggravated by such a state, and if detected and treated from this angle, results will obtain in many cases which resist the ordinary routine treatment alone.

I wish, however, to call attention to two phases of this case. First, the patient had the stigmata of hypothyroidism in addition to her other troubles, and second, she was very carefully observed while undergoing the test which consisted of giving thyroid extract. I consider thyroid extract a potent drug and a dangerous one when handled carelessly. Of course the test of choice in determining the state of thyroid activity is the metabolic rate test, but since this paper is addressed to the general practitioner, and since to him the apparatus for the metabolic rate test is not always available, I believe that, if carefully carried out, the tolerance test to thyroid extract will be found very practical and safe. Especially do I think this is true when the patient has symptoms of hypothyroidism to begin with.

GOITER

As previously suggested, a simpler and more practical classification of goiter is needed to replace the old and often incorrect text book classifications. The following classification is suggested by Jackson,

is very practical, and conforms to the latest acquired knowledge of goiter. He classifies them into three groups:

1. Colloid Goiter.
2. Adenomatous Goiter.
 - a. Toxic.
 - b. Non-toxic.
3. Exophthalmic Goiter.

Of course there is tuberculosis, syphilis, malignancy, thyroiditis, actinomycosis, etc., but these are relatively rare and will not be discussed here except to suggest that if there is thyroiditis, a focal infection in the mouth should be looked for.

A differential diagnosis of the above mentioned three types of goiter is very necessary if iodine is to be used in their treatment. This fact will be appreciated when we recall that iodine may be used in all types of goiter except the adenomatous type, in which it is positively contraindicated.

DIAGNOSIS

A colloid goiter is symmetrical in enlargement, is soft and globular on palpation, and is seen most often in the young. (60% of school girls in goitrous districts of the middle west.) There may be associated hyperthyroidism or hypothyroidism, or there may be neither. It is due to iodine starvation and may be cured in its early stages by small doses of sodium iodide. If treated late it will disappear very slowly or perhaps not at all. It sometimes produces pressure symptoms which demand its removal, or the patient may demand such a procedure for cosmetic effect. If neglected, it may become adenomatous.

The adenomatous type, unlike the colloid, is asymmetrical in its enlargement and is nodular and firm or hard on palpation. If it is non-toxic there may be no symptoms other than pressure symptoms on the trachea. It may exist for many years as a large ugly tumor without serious trouble, when suddenly it may become toxic. The average duration in the non-toxic state is sixteen years. This average is now being reduced because of the misuse of iodine. If iodine is given to a non-toxic adenoma, it immediately becomes toxic. If it becomes toxic of itself, and iodine is given it is made immediately worse, and the results may be fatal. With this type of goiter, surgery is probably the treatment of choice, though the x-ray has its advocates.

Exophthalmic goiter is that type that has, in addition to the enlargement of the gland, a protrusion of the eye balls. The glandular enlargement may be very little or very large, but with this type of goiter there is always thyrotoxicosis. In that the

condition cannot be produced experimentally by thyroid feeding, it is held by some authorities to be a form of dysthyroidism, probably the result of imperfectly iodinated thyroxin molecules. This theory is further supported by the fact that subtotal thyroidectomy is often unsatisfactory, whereas the condition is at once ameliorated by the administration of Lugol's solution. Edward, in a thesis, "The Use of Lugol's Solution in the Treatment of Exophthalmic Goiter," asks, "Is the use of Lugol's solution a method of cure, or is it a means of preparing the case for a primary thyroidectomy, avoiding the necessity of preliminary ligations?" He further states, "Our experience indicates that through its use in true cases of exophthalmic goiter the pulse rate and basal metabolism can be lowered to normal, and that this improved state can be maintained with small doses. With the early discontinuance however, the clinical state returns to its former severity. Whether or not cases can be completely cured, carefully prepared and protracted records will tell."

It is probable that many cases of thyroid disturbances, thought to be functional hyperthyroidism, may in reality be early and abortive forms of exophthalmic goiter. Such disturbances are often noticed at the periods in life of so-called physiological stress. These periods in the female are puberty, marriage, pregnancy, the puerperium, the menopause and senility. In the male there are only two periods of physiological stress, puberty and senility. This difference in the male and female is thought to account for the prevalence of thyroid disturbances in the female. It is in this type of case that the general practitioner assumes a great responsibility. If such cases are not recognized and treated in these early stages, some form of goiter is likely to develop. One of the first hints of hyperthyroidism in the female, according to Bandler, is a premenstrual nervousness. Also the hot flashes of the female, so often attributed to ovarian disturbances, are thought by this author to be in reality a thyroid disturbance. In the writer's experience many of these cases are greatly benefitted by the administration of Lugol's solution.

AN ILLUSTRATIVE CASE

Mrs. S. K., age 50, gives the history of having passed rather a stormy menopause which terminated at age of 49. She is now very nervous and in the last few weeks has noticed a slight swelling on the anterior surface of the neck. The enlargement was soft and symmetrical, she had a very fine tremor of her hands, her patellar

reflexes were greatly increased and there were all the symptoms of acute hyperthyroidism.

She was placed in bed and given three minims of Lugol's solution three times daily. Her nervous symptoms disappeared in a few days, and in two weeks the thyroid enlargement disappeared. This case was easy of recognition because of the thyroid enlargement, but very often we see cases with all or part of such symptoms without the glandular enlargement. These cases are very easily overlooked, or the symptoms may be assigned to other causes. In such cases the Goetsch epinephrin test is of value to the man who is not equipped for the metabolic rate test.

The quinine hydrobromide test is also very practical. It is based on the fact that patients suffering with hyperthyroidism oxidize the drug more rapidly than the normal person. The test consists of giving two grains of quinine hydrobromide three or four times daily. In the normal person there is pronounced cinchonism after two or three doses, while in the hyperthyroid case there is no cumulative effect when given at such intervals, and hence no cinchonism. In that the drug is recommended in the treatment of hyperthyroidism, it must be regarded as a safe measure. Its efficacy has been checked with the metabolic rate test and found accurate, except of course there can be no quantitative value to it.

CONCLUSIONS

Thyroid disturbances are more numerous than commonly suspected.

Hypothyroidism and hyperthyroidism are often masked by other diseases when they are in mild or abortive states.

Iodine though a valuable agent in the treatment of thyroid disturbances, is often misused.

The goiter problem presents the man in general practice, a great responsibility.

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DISCUSSION

(Papers of Dr. A. C. Scott, Jr., Temple, Texas, and Dr. H. H. Latson Amarillo, Texas.)

DR. C. F. BEESON, Roswell, N. M.: (Opening.) I enjoyed the papers very much and always enjoy papers upon this subject, since, to a certain extent, I had a little personal experience in my own family

of the dangers in iodine treatment and I think this is very timely for the general practitioner, owing to the great country-wide feeling that there is not sufficient iodine in the water and our vegetable foods. The warning given, however, I believe to be most important, because we have found that certain cases of these goiters become worse with iodine treatment.

In my little experience in observing these cases, I found that there is something else besides iodine for these patients and while it is essentially iodine, yet it is iodine in a different form. To me there is an iodine in thyroid environment or you might say there is thyroid in iodine environment. If you are giving iodine, you will not get results and you might do a little harm, but if you give thyroid extract in certain cases of goiter, you get benefit. While I consider giving iodine, I give it in a thyroid extract, whereas if given straight, I think it would do harm. There are some cases of that nature; some cases of goiter in young females which I believe are a thyroid hypertrophy indicating an excessive demand for thyroid hormone greater than they can normally produce. If you give those persons not iodine, but thyroid extract, you will furnish the extra amount of hormone required and they will receive their iodine in a thyroid environment.

In classifying thyroid disease, or rather conditions, there are a great many classifications, and I do not believe any two of our writers classify them in the same way. They speak of the endemic goiter and the sporadic goiter as different, and say our positive endemic goiter means the goiter you will find in with this condition. Both doctors speak especially school children, perhaps in a goiter district and shows the thyroid enlarged where they have a deficiency of iodine. Sporadic goiter possibly includes all other varieties, while endemic goiter would be the simple hypertrophy and colloid varieties, which is due to deficiency of iodine.

There is a form of toxic adenoma which produces hyperthyroidism; then we have what I call puberty hyperplasia, that is it occurs in young people at puberty. I recently had the case of a Miss T. I gave her iodine, which made her condition very much worse and she had a small goiter, showed basal metabolic rate of 18% plus. She had what I considered puberty hyperplasia—a latent toxic goiter if you please. She is in just the right condition to get exophthalmic goiter—a fright or sudden emotional disturbance would probably put her in the exophthalmic goiter class, though she has not those symptoms now.

The treatment of these simple goiters, or what we call goiters in young folks, needs careful consideration. There are certain cases the general practitioner sees first and I am sure that if you will observe these closely you will find that iodine will harm certain ones. Putting iodine in drinking water and such as that promiscuously is going to bring out these cases.

DR. GEORGE S. LUCKETT, Santa Fe, N. M.: This subject is of considerable interest to us in public health work generally. We have had a great hurrah in the last year or two over the subject of goiter, particular around the Great Lakes and in all parts of Ohio, and this has extended to the other states. We are informed in many places that fifty or sixty per cent of the young girls, high school students and others, are beginning to show signs of goiter, but practically none of the writers distinguish between the various types of goiter; they simply state that such and such a percentage have goiters. I think first of all we ought all of us to distinguish more exactly between the various types of goiter.

The necessary, logical sequence of this movement is that iodine is advocated as a universal remedy.

The City of Rochester, N. Y., has gone so far as to put iodine salt in the drinking water of the whole city. If iodine is not to be given in some of these cases, this would seem to me to be a very dangerous procedure.

Dr. Scott mentioned the fact that 90% of the colloid style of goiter would disappear at the age of twenty-five. That would mean that, in our most seriously affected region, if all the reported goiters are goiters, only about 5% would be persistent after that age in the worst areas.

Dr. Latson mentioned the fact that some of these might become adenomatous, which would seem to call for some kind of treatment. Do we know that we can, or want to clear up all this colloid type with iodine treatment? I am asking now for information and would like to have some expression from the gentlemen here as to how far a health department ought to go in stirring up public interest in this question of goiter? Is there a great enough element of danger in this type of goiter to affect us from a public health standpoint; is there enough danger to warrant all the excitement that has been stirred up, and should we take public health measures against it?

DR. W. F. DUTTON, Amarillo, Texas: I have listened with a great deal of interest, to the papers of Drs. Latson and Scott. This is a subject of much importance to every general practitioner. Personally I think there are a great many mistakes made in the promiscuous use of thyroid extracts. Quite recently four cases came under my observation which had been diagnosed, and properly so, hyperthyroidism. The attending physician had prescribed thyroid extract, desiccated, from one to five grains, three times daily, this dosage to be taken at the discretion of the patient.

It has been my experience that in treating thyroid conditions other endocrine glands should be taken into consideration. The hazard of a rapid change of a hypo to a hyperthyroidism is great and frequently the reverse secretory process results in death.

Every practitioner should remember that thyroid disturbance means endocrine imbalance. Any therapy that is not directed to the pathological physiology of these conditions is decidedly empirical and should not be used. Such methods in treatment have a tendency to bring endocrine therapy into disfavor, and I feel unjustly so, for, when indicated, it is a boon to humanity.

DR. A. C. SCOTT, JR., Temple, Texas, (Closing): I wish to thank you for the discussion and to say I also very much enjoyed Dr. Latson's paper.

In answering Doctor Luckett's question concerning the percentage of colloid goiters and the percentage of those which turn into exophthalmic goiter, we believe that about five per cent of all goiters seen in the southwest are of the colloid type, and that three per cent of these eventually become exophthalmic goiters.

Answering the question as to the advisability of bringing before the public the usefulness of iodine in the treatment of goiter, I do not think we ought to talk too much before we doctors are a little more agreed as to the classification of the different types. I think everyone is coming gradually to recognize the three main types we have just discussed and therefore we will be in a better position to advise the public, but there is no doubt that if the public grasps the idea that iodine will cure goiter much harm may be done, for the public will not distinguish between the different types. There is no avoiding the fact that iodine given to patients with adenomatous goiter will make them toxic. Therefore, it seems to me that iodine in the drinking water or in table salt should not be given to the public in general. The logical thing to do is to give it in individual doses to each individual who needs it.

I cannot agree with Doctor Latson concerning the administration of thyroid extract as a tolerance test. It has been proved by Plummer, and a number of other men, that thyroid extract takes effect very slowly, when given by mouth. It requires twelve days for the maximum effect to be observed in practically all cases. This has been proved over and over again. Therefore, it seems highly improbable that any real information can be obtained from the so-called tolerance test.

DR. H. H. LATSON, Amarillo, Texas, (Closing): I enjoyed Dr. Scott's paper very much and believe that he is correct in everything that he has written, at least in the light of our present knowledge of the subject.

I believe, however, judging from his discussion, that he has misunderstood me in regard to the use of the thyroid tolerance test. My paper dealt mostly with the numerous mild cases of hypothyroidism, with which we rub elbows every day, rather than the very rare cases of frank myxedema. In these cases it does not take more than a day to get the physiological effect of the drug. There is no reason, however, that the test may not be practical even in cases of myxedema, if the increase in dosage is made at longer intervals, say three days, or even a week. I recommend the test to the general practitioner, because to him the metabolic rate apparatus is not always available.

In regard to obesity, I wish to say that I doubt if ever this condition is solely hypothyroid in origin. I believe that most cases of obesity are hypopituitary in origin if they are glandular at all.

This conclusion is reached, first, from the observation that even myxedematous patients are not extremely obese, and, second, from the fact that in hypopituitarism there is known to be an increased sugar tolerance, and hence obesity. I would not use thyroid extract as a routine in the treatment of obesity. In some cases, however, there is a marked association of hypothyroidism, and in these cases thyroid extract is a useful adjunct to other measures.

THE MEDICAL TREATMENT OF GOITER

F. M. BARNES, M. D.
EL PASO, TEXAS

The medical treatment of goiter depends almost wholly upon the kind we have to treat. Therefore, a correct diagnosis of the kind we have should be made before any medication is begun.

The first step in the treatment should be to find the cause and remove it, thereby stopping the irritation of the gland.

The drinking water in many localities is the causative factor. In some localities the mineral in the water produces goiter, while in others it seems the water is iodine free which may be the causative factor, and in other localities the water is polluted with fecal matter or certain forms of bacteria.

Infected tonsils, sinuses, nasopharynx,

gums or bad teeth may be the cause and should be removed.

The diet is a very important factor in the treatment of goiter. Red meats, liver, heart, onions, raw fruit, salt, highly nitrogenous and very rich foods and condiments should be prohibited. White meats, white breads and some fish may be taken sparingly, while carrots, asparagus, lettuce, celery, spinach and prunes are exceptionally good.

The nervous system plays a very important role. A nervous shock, a lick on the head, prolonged nervous strain or any nervous irritation may precipitate an attack.

Rest is one of the most essential things in the treatment of goiter. Rest in bed, mental rest, physical rest, and nervous rest are all very important. All severe cases of goiter, if possible, should be sent to a hospital where it is very quiet and placed under the care of a very capable nurse who knows how to quiet and soothe a nervous patient. Relatives and sympathizing friends should be excluded as far as possible. When hospitalization is not possible, the patient's surroundings should be changed as far as possible and made very wholesome and complete rest brought about.

The elimination from the body should be carefully taken care of. In the alimentary tract we may find the cause of the ailment. Purgatives as best suited to the patient should be given as needed and the alimentary canal thoroughly antisepticized. This may be accomplished by using the sulphocarbolate of zinc, sodium salicylate, betanaphthol, salol or creosote carbonate.

HYPOTHYROID OR NON-TOXIC GOITER

When we remember the important part the thyroid secretion plays in counterbalancing the secretions of other glands in the body and other toxins in the system, as soon as the thyroid is in trouble we think of removing the cause and this alone in some cases is all that is necessary for the gland again to become normal. In some cases we must assist the gland by supplying its needed substance,—iodin. This may be done by giving the patient five to ten grains of sodium iodide in a glass of water after each meal. Since some patients do not take the iodides very well it is best to begin with small doses and increase as the patient can take it. Should symptoms of iodism appear the patient should be given two to four minims of Fowler's solution three times a day.

The thyroid extract may be used in the place of the iodides in doses of two to five

grains of the extract three times a day, as the case may require. We should be very careful not to use these remedies in cases where the gland is oversecreting as they will do harm.

When we have heart complications heart remedies, as digitalis and strophanthus, may be used to a great advantage. The vaccine therapy has been tried by some with some good results.

HYPERTHYROID OR TOXIC GOITER

According to Breneger 20 to 25 per cent of all cases of simple goiter have symptoms of toxic goiters. *I believe any simple goiter may become toxic if the cause is not removed and proper treatment instituted: also, a toxic goiter may become an exophthalmic goiter. The treatment I wish to submit to you for this form of goiter is the treatment given by Dr. L. F. Watson of Chicago. Dr. Watson, under aseptic precautions, injects into the thyroid gland, at intervals, a few minims of a sterile salt solution followed by injections of sterile water. These injections are given to reduce the nervous reaction on the patient and are used three or four times. Following this he uses a 30 to 50 per cent solution of quinine urea hydrochloride of which fifteen to sixty minims are injected into the gland. This is done as often as is necessary to destroy enough of the gland to stop the over secretion. It is best to use the injection two or three times, two or three days elapsing between the injections, and then waiting for a period of a few months to see what effect the destruction of this amount of gland will produce upon the patient. If you find you have not destroyed enough of the gland to stop the oversecretion, then another injection may be given in the same way.

Dr. Watson does not claim to reduce materially the size of the goiter, but in some cases the size is reduced materially so that the presence of the goiter can hardly be detected.

The injection of boiling water by Dr. F. W. Porter has given good results in destroying the gland and relieving the patient.

EXOPHTHALMIC GOITER

Exophthalmic goiter or Grave's disease is a very common and dangerous form of goiter. Therefore it should be recognized early and treated heroically by the physician and patient from the beginning. The cause should be sought diligently and removed.

There are three distinct stages of Grave's disease. The first or erethic stage is so different from the other two that

its treatment is altogether different. In this stage we are dealing with an irritated, over stimulated gland corresponding to the toxic goiter just described and the treatments are very much the same. Such therapeutic agents as will assist the gland in performing its functions, that is, take care of the toxins and waste of the body, will be beneficial. In this division the iodides and thyroid extracts are contraindicated. We have an oversecreting gland to deal with and its secretions influence the nerve and muscle metabolism, especially the cell nuclei which are rich in phosphorous, thus depriving the system of its normal amount of phosphorous and causing a vasodilatation which increases the blood supply to the organ and increases it in size, bringing about more secretion.

The phosphorous thus wasted should be supplied to the body by giving sodium phosphate or glycerophosphate of soda in twenty grain doses three times a day. By thus supplying the needed phosphorous we reduce the vasodilatation and limit the extra amount of blood to the gland, to the heart muscle, and posterior orbital vessels and tissues. The vasoconstriction may be brought about further by the continuous use of quinine in large doses and over a long period of time. Ergot is very helpful and may be given with the quinine. To overcome the nervousness and sleeplessness of the disease which will probably be increased by the quinine, the bromide alone or combined with chloral may be given at bedtime. During the day phenacetin in five grain doses may be given three times a day.

Hypodermoclysis or enteroclysis given every other day may be of great benefit. This dilutes the toxins in the blood and assists in their elimination.

The pituitary extract, given in four to seven grain doses three times a day will cause a vasoconstriction and aid greatly in the treatment. If the thymus gland is not enlarged the administration of the thymus extract will be beneficial. It may be given in the form of sweetbread as a food, one to three ounces daily or a five grain tablet may be taken during the meal.

Many sera obtained from animals, as the sheep, rabbit, or dog deprived of their thyroids, or which may have been treated with extracts of exophthalmic glands, are bene-

ficial. The injection of the gland, previously described by Dr. Watson or Dr. Porter, has given splendid results.

The x-ray treatment here is very pleasing especially when the thymus gland is enlarged. The x-ray should not be used in growing children as the thymus gland is necessary for their growth and development.

In the second or transitional stage, the thyroid extract and iodides may be beneficially used, but with caution. During this stage the gland tissue destruction has so progressed till only an approximately normal amount of secretion is given off by the gland to carry on the normal body metabolism. During this stage the patient seems much improved and marked symptoms subside. Here again the thyroid extract may again be used to a good advantage.

The third or myxedematous stage begins as soon as the gland tissue is sufficiently destroyed that the secretion is deficient. During this stage the thyroid extract is invaluable. Enough of the extract should be given daily to carry on as near as possible the normal function of the body.

In this division of goiter the heart conditions must be watched carefully. Digitalis in some of its forms best borne by the patient should be given. Strophanthus also may be used. All enlargements of the thyroid gland should be watched carefully. As soon as they appear the cause should be sought out and removed, if possible.

I wish to report two cases that occurred in my practice which were treated by the quinine urea hydrochloride injection method.

Mrs. B., age 37, had a slight enlargement of the gland as far back as she could remember, bad tonsillitis probably being the cause. Suddenly the gland began to grow and all symptoms of exophthalmos appeared. The injections were begun and continued over a period of three years, injecting the gland a few times every six months. The patient steadily improved till she was dismissed as cured, the measurements of her neck reduced seven inches and today you can hardly tell she has ever had a goiter. She also had the rest and a very restricted diet.

Mrs. L., age 60, goiter not large but had had symptoms for about 12 years. Her daughter died with goiter a few years before her treatment began. She went to Mayo's, but was told to return home and live as long as possible. She took the injection of quinine urea treatment and improved from the beginning and is today seemingly in all respects a well woman. The enlargement has nearly all disappeared.

INHERITED SYPHILIS

RAFAEL A. HERNANDEZ, M. D. TUCSON, ARIZONA

Evidence of inherited syphilis may be present at the time of birth or a few weeks

after, but in the majority of cases the symptomatology is developed later.

Regarding inherited syphilis, Haskell Sylvester says in the *Boston Medical and Surgical Journal*, August 27, 1925:

In view of the fact that syphilitic women on becoming pregnant, lose their characteristic lesions, tend also to become Wassermann negative, with treatment at other times most inadequate, and tend to remain negative for several weeks after parturition, clinical and serological diagnosis of the baby's condition from the mother during pregnancy and for sometime after is unreliable. The tendency of a non-syphilitic pregnant woman to have a so-called false positive Wassermann reaction adds to the uncertainty of serological diagnosis. While the tissues of dead premature infants with syphilis will usually have a positive Wassermann reaction, the living syphilitic baby is rarely positive as to cord blood and spinal fluid until five or six weeks old. The baby's father is occasionally righteously Wassermann negative, and occasionally so through treatment.

Ordinarily the syphilitic newborn lives only five or six months, then dies from acute or chronic diarrhea during the dentition period. But if these luetic children have a proper specific treatment, they may recover apparently and their symptoms usually disappear. I believe that we should think of syphilis in those cases of babies



who, without any justifiable reason, cry all the time and look unhealthy; also all babies with erythematous eruptions, with enlargement of spleen and liver and all those with earthy skin color and some with jaundice.

The syphilitic jaundice of a newborn usually appears about ten or fifteen days

after birth and becomes hemorrhagic a few days afterwards; the urine has blood corpuscles, the fecal matter is stained a white-yellow and there is a ninety per cent mortality due to hemorrhages, especially hematemesis. The autopsy shows an enormous enlargement of liver yellow-green in color.

A. B. Marfan says, in *Le Monde Medical*, September, 1925, that sometimes this gravid jaundice is due to pyogenic infection, but in this case always coincides with a puerperal infection of the mother and the infection to the baby takes place through the umbilical cord. (See also Picot, *Manuel des maladies de l'Enfance*, sixth edition, folio 947.)

A few months ago I saw a skinny and epileptic baby with iritis, his parents gave me a negative history, but I did not take their word and had a Wassermann reaction of the baby's blood, which was positive. He is improving under specific treatment. Also I have had some cases of infantile diarrhea successfully treated with small doses of mercury and potassium iodide in syrup. Furthermore, we all use the calomel and bismuth in treating infantile diarrhea, and when we prescribe such preparations as a general rule we expect the cholagogue action from calomel and the astringent and protective value for the mucous membranes from bismuth: perhaps we have succeeded in these little patients due to the anti-syphilitic action of those preparations.

The case I am here reporting shows the typical malformation of the upper incisors known as "Hutchinson Teeth" as can be seen by the illustration.

This patient came to me in May, 1925, and her mother gave the following history:

When the patient was about four months old she had an eruption on her nose, in the angles of mouth and around the rectum. Those manifestations disappeared with applications of calomel ointment. Then she had a chronic bronchitis, coryza and otorrhea on the right side and chronic dactylitis. When she was attending school she always had difficulty in learning her lessons and was continually punished by her teacher who believed that the child did not comply with her studies.

When she came to me she complained of chronic headache, vertigo, constipation, pain in her throat and hoarseness. She told me she was sixteen years old but she looked older. She had no menstruation; her voice was like that of a little child, her general appearance was that of poor health, small stature, delicate, scanty hair, and deafness of the right side.

Physical examination showed an enlargement of the tonsils which appeared somewhat congested. A large amount of mucus was found in the pharyngeal cavity, falling from the post-nasal space and probably from the pharyngeal orifice of the Eustachian tube, as she had otorrhea. Her breath was foul.

The Wassermann reaction was positive and specific treatment was established and the patient improved. The headache disappeared. She is now under the care of another physician.

UTERUS GRAVIDUS IN PENDULOUS BELLY

RAFAEL A. HERNANDEZ, M. D.
TUCSON, ARIZONA

The flat or antero-posterior contracted pelvis can be considered one of the most important causes of uterus gravidus in a pendulous abdomen. Sometimes this abnormal condition is due to weakness of the abdominal muscles, especially the recti abdominalis.



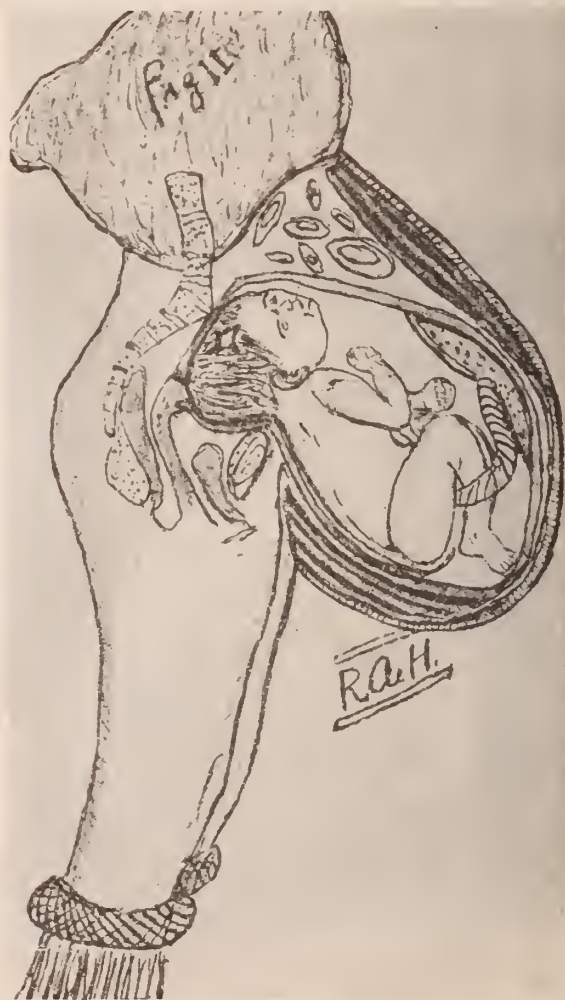
Professor De Lee says, regarding displacements of the uterus: "In pregnancy, the uterus always becomes anteverted owing to the distention of the anterior abdominal wall. When this becomes pathologic, we call it pendulous abdomen and in advanced cases the fundus may be inverted, pointing downward, and hanging between the knees. The diastasis of the recti, which by the laity is called 'rupture' may be so marked that the uterus falls forward, covered only by the peritoneum, a thin layer of fascia, and the skin, allowing the surface and the contents of the uterus to be felt with startling distinctness, and sometimes, even the color of the organ showing through *Hernia Uteri Gravidæ Abdominalis*. In such cases locomotion may be hindered."

I had a case almost identical to the description of Professor De Lee.

Mrs. M. R., 42 years old, pregnant at full term, primipara, with pendulous abdomen, complaining of pernicious vomiting (Fig. 1).

On physical examination the recti abdominalis muscles were felt over the oblicus externus, giving an impression and a sensation of a large umbilical hernia. The color of the skin in that part was light red and the integument was very thin.

She had an enormous edema of the vulva; the cervix was up and backwards and it was impossible to touch the head of the



fetus with the fingers, perhaps due to the contracted pelvis of the patient, for which reason I performed a Porro operation and the fetus was found in the position shown by the drawing (Fig. 2).

The child had a meningocele or spina bi-

fida. The tumor was as large as a medium sized lemon, just at the level of the foramen magnum. This was possibly due to the pressure of pubis against that part of child's body or perhaps to congenital syphilis as the Wassermann reaction on the mother's blood was positive three months after parturition.

The child lived two years, having proper specific treatment and a special support with pressure above the sac of the spina bifida. After a few months the mother got tired of this care and the tumor became very large (Fig. 3).

The attitude of the child was that of an idiot. She could not hold her head up and died on account of ulceration and rupture

of the tumor, the sac of which contained prolapsed roots of nerves.



SECCION ESPANOLA

En ésta Sección, encontrará Ud. sumarios de los principales artículos originales publicados en la presente edición.

OBSERVACIONES EN EL DIAGNOSTICO DEL CANCER.

J. H. Musser, M. D., Profesor de Medicina en la Universidad de Tulane de New Orleans, La.

Sumario histórico desde la época de Hipócrates hasta los tiempos modernos, con relación a las instituciones de investigación del cancer.

Las tres teorías a que se ha atribuido la naturaleza del cancer son, a saber: (1) embrional; (2) anaplasia; (3) parasitaria. La teoría parasitaria no ha recibido ninguna consideración importante en las últimas publicaciones de las investigaciones de Gye, quien considera que el desarrollo del cancer es el resultado de la inter-acción de dos substancias; (a) un virus que considera específico y (b) una substancia química comparable a la agresión de las toxinas de los bacilos de Welch. El virus puede desarrollarse en un medio especial bajo condiciones anaerobias y una subcultura diluida a un mil de millon será capaz de producir tumores. Hay un número de objeciones a la teoría parasitaria de Gye y muchas características de la malignidad carecen en absoluto de explicaciones en el trabajo de Gye.

Los factores conocidos en la etiología del cancer permanecen en pie, a saber: (a) hereditario y (b) irritación. La influencia hereditaria no podrá negarse, la diferencia de opiniones de los investigadores, viene extendiéndose en favor de esta influencia. El trabajo de Maud Slye, ha establecido una duda razonable en proo de la influencia hereditaria y en contra de la tendencia al

cancer. Las influencias del traumatismo é irritación, no han sido separadas del punto de vista etiológico, por ninguno de los recientes investigadores; y estas influencias, permanecen como las mas prominentes causas del desarrollo inmediato del cancer, en particular de ciertas regiones del cuerpo.

Al hacer un diagnóstico de cancer, se deben tener presentes, ciertos puntos importantes en su principio:

Recoger una historia cuidadosa del enfermo; hacer un examen físico completo; usar del sentido del tacto, también como del sentido de la vista.

Desconfiar de las excoriaciones o las timaduras de la piel y membranas mucosas que no se cicatricen en pocas semanas; desconfiar de las manchas, mezquinos y granos que cambien de color, tamaño y apariencia.

Desconfiar de todo crecimiento en el cuerpo; mirar con sospecha cualquiera disfunción fisiológica si es violenta. Desconfiar de las hemorragias, de los dolores epigástricos y síntomas digestivos anormales en los sujetos mayores de 45 años.

Sospechar de los desechos anormales y de las ictericias. El examen microscópico es el único método positivo de diagnóstico, pero no debe recomendarse sino en los casos de que el enfermo se someta a la remoción radical del tumor, si la prueba resulta positiva.

Hay que recordar que los síntomas típicos del cancer, son los avanzados e incurables. Los síntomas en estado curable, deben verse cuidadosamente.

PRUEBAS DE RECIENTES ASPECTOS DEL CANCER POR OBSERVACION EN SUS MANIFESTACIONES OCULARES.

Edward Jackson, M. D., Denver, Colorado.

Este autor comenta las conclusiones de Gye y Barnard, relativas a que la causa del cancer obedece a infiltraciones virulentas y la malignidad del mal surge de la conjuncion de dos factores; (1) una infiltracion de virus que puede derivarse de otra especie animal u otra clase de cancer; (2) un factor especifico que debe haberse desarrollado de una lesion similar en un animal de las mismas especies.

Los tumores malignos son masas de celulas que retroceden a los estados primitivos de la vida, dedicando sus energias enteras a las funciones de reproduccion y nutricion. Las influencias responsables por este deterioro de la economia celular, representa la etiologia del cancer.

Hay cinco estados en el curso de esta enfermedad, a saber: (1) el periodo cuando el crecimiento no aparece ser una lesion maligna como son los angiomas, melanomas, y verrugas o tubérculos; (2) periodo de rápido desarrollo del mal con tendencia a la invasion; (3) desarrollo mas marcado con evidente clinica maligna; (4) periodo de metástasis; (5) deterioro general de la salud con caquexia y muerte.

Las observaciones oculares de estos desarrollos han sido cuidadosas desde su temprana aparicion y se les considera de valor en las recientes investigaciones promulgadas, en la naturaleza esencial que armoniza la existencia del cancer con las manifestaciones clinicas durante el curso de la enfermedad maligna.

El juicio critico del autor se basa en los reportes de epitelomas, carcinomas y sarcomas que han aparecido en la literatura. Sus conclusiones son escepticas con respecto a la infiltracion de virus; es tanto, que cree posible que un solo virus es capaz de causar el carcinoma y el sarcoma. Considera que el descubrimiento de lo que Gye, llama factor especifico en la enfermedad de referencia, arroja muchisima luz sobre la patologia del cancer.

Se presentose desarrollo, a una substancia en el cuerpo a la que las células del cancer son inmunes, pero esa substancia estorba o hace dificil la penetracion o metástasis de las celulas cancerosas, de donde se explica el tardío avance de la enfermedad maligna.

EL USO DEL IODO EN EL TRATAMIENTO DEL GOITER

Dr. A. C. Scott Jr., Temple, Texas.

En el suroeste, los tipos de Góiter adenomatosos y exoftálmicos son los mas prevalentes. El tipo coloidal es comparativamente raro, está puede desaparecer rápidamente por la administracion de iodo; de preferencia en la forma de ioduros.

En los casos adenomatosos, la remoción quirúrgica es el único tratamiento indicado, tanto en la forma tóxica como en la no tóxica.

El góiter exoftálmico, es una de las enfermedades mas dificiles de tratarse con buen éxito; y por lo mismo, es esencial establecer la diferencia de diagnóstico, ya que el tratamiento es enteramente distinto.

En la forma exoftálmica, la medicación no es satisfactoria, pero los periodos de descanso prolongado, alivian los síntomas.

El uso de los Rayos x. da buenos resultados, la única objeción que tiene es que solo ofrece un noventa por ciento de mejoramiento y un sesenta por ciento de curación. El tratamiento debe ser prolongado y no se esperará ningun mejoramiento dentro de los primeros cuatro meses. Durante el periodo de tratamiento, el enfermo está sujeto a los efectos de la toxina.

La administracion de solución de Lugol, seguida de intervencion quirurgica, cuando se hace necesaria, es el metodo de eleccion en el Góiter exoftálmico. La mortalidad en enfermos preparados por la solución de Lugol, es muy baja y el fracaso quirúrgico está considerado en un cuatro por ciento.

LA SIGNIFICACION DE LOS DESORDENES DE LA GLANDULA TIROIDES PARA EL MÉDICO PRACTICO.

Dr. H. H. Latson, Amarillo, Texas.

Los desordenes de la glándula tiroides son vistos en el estado temprano por el médico práctico y la mayoría de ellos pueden ser tratados por el. El hipotiroidismo, no recibe la importancia que merecen los desordenes del tiroides, aunque existen formas leves de hipertiroidismo con relativa frecuencia. Frecuentemente se citan tres casos ilustrativos: dos en los niños y uno en el adulto, en los que el extracto tiroideo produce un mejoramiento marcadísimo. Estos desordenes pueden clasificarse en una forma simple: (a) Góiter Coloideo; (b) Góiter Adenomatoso; toxico y no tóxico y no tóxico; omatoso; toxico y no tóxico; y (c) Góiter Exoftálmico. Es indispensable un diagnóstico diferencial, ya que el ioduro está indicado en los tipos coloides y exoftálmicos;

pero en el tipo adenomatoso es inofensivo.

Las pruebas de tolerancia de substancia tiroides en la sospecha de un hipotiroidismo y la de bromohidrato de quinina para los de hipertiroidismo, son recomendadas al médico que no tiene acceso a las determinaciones de la base metabólica.

TRATAMIENTO MEDICO DEL GOITER.

Dr. F. M. Barnes, El Paso, Texas

El tratamiento médico del góiter depende del diagnóstico diferencial. El primer paso será buscar y encontrar la causa y removerla. A menudo se encuentra en el agua potable, dieta o en una infección focal.

El góiter no tóxico, se trata con ioduros o con extracto tiroideo. El hipertiroidismo, puede ser tratado con inyecciones de clorhidrato de quinina y urea, de acuerdo con la técnica del Dr. L. F. Watson de Chicago.

El tratamiento del góiter exoftálmico, estará de acuerdo con la condición en que se encuentre. En el estado de sobresecreción, el extracto tiroideo y los ioduros están contraindicados. La eliminación se estimulará con glicerofosfatos; y la acción vasoconstrictora, con ergotina y extracto pituitario. El uso de los Rayos x. está bien indicado en este caso. En el segundo estado, se pueden administrar los ioduros y el extracto tiroideo, con precaución. En el estado tercero o mixidematoso, el extracto tiroideo es indispensable.

SIFILIS HEREDITARIA.

Dr. Rafael A. Hernandez, Phoenix, Arizona.

Por regla general, los niños heredosifilíticos solo viven unos cuantos meses. En la mayoría de los casos, mueren de diarrea aguda o crónica; pero si esos niños reciben un tratamiento específico y adecuado, se pueden recobrar aparentemente y tal vez hasta sanar.

Creo que debemos sospechar la sífilis en los niños que lloran constantemente y se ven faltos de salud; con especialidad aquellos que tienen erupciones eritematosas, engrandecimiento del bazo y del hígado, color terroso o icterico.

Segun la historia recogida, el caso ilustrado, a la edad de cuatro meses, tuvo erupciones en la nariz, ángulos de la boca y en la margen del ano, que desaparecieron con ungüento de calomel. Mas tarde tuvo bronquitis, coriza, otorrea, y dactilitis crónicas. Ultimamente ha sufrido constante dolor de cabeza y de garganta; su voz es afónica; padece vértigos y estreñimiento. Dice

tener 16 años y carece de menstruación. Su apariencia general revela empobrecimiento de salud. La ilustración muestra los llamados dientes de Hutchinson y la reacción de Wassermann fué positiva.

UTERO GRAVIDO CON ABDOMEN PENDULADO.

Dr. Rafael A. Hernandez, Phoenix, Arizona.

La estrechez antero-posterior de la pelvis, es una de las causas importantes en los casos de Utero Grávido con abdomen pendulado. De acuerdo con De Lee, la diástasis de los músculos rectos, puede ser tan marcada, que el útero se desvía colgando hacia adelante hasta en medio de las rodillas, cubierto solamente por el peritoneo, una capa de fascia y la piel. El caso reportado, es casi idéntico con esta condición, en el que el feto fue extraído por una operación de Porro. El niño tenía una meningocele y vivió por dos años, muriendo por ulceración y ruptura del tumor.

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OUR LATEST

There will be found in this issue the innovation which has been talked about for the past two years. This is the presentation, in abstract form, of the principal articles of the journal in Spanish. This copy of the journal is going to every doctor in northern Mexico, with an invitation to become affiliated with the Medical & Surgical Association of the Southwest, which will carry with it subscription to the journal for 1926.

The Editorial Board received two offers from physicians in the Southwest Association to translate these abstracts; one came from Dr. F. Ahumada of Juarez, Sonora; the other from Dr. R. C. Hernandez, formerly of Tucson, now located in Phoenix. On account of convenience, Dr. Hernandez will probably act as Spanish Editor for the Journal.

The publishers of the journal have very graciously consented to handle the Spanish material without extra charge, and the Medical & Surgical Association will bear whatever expense the additional space used in the journal costs. This is a feature offered by the Southwest organization to the medical profession of northern Mexico, in an effort to build up the organization in that country.

THE ANNUAL MEETING OF SECRETARIES AND EDITORS

The annual conference of secretaries of state medical associations which, for the past two years has included, also, the editors of state medical journals, has developed into a meeting of importance in medical affairs in this country. In this conference there are gathered together those men who, more than all other influences, mould

the medical thought and direct the medical activities of the profession. Some of these men have been secretaries or editors for half a life time, and are living encyclopedias of the medical progress in their own states. Not only this, but they have become so firmly fixed in the respect and affection of their confreres, that their opinions carry more weight in their communities than the voices of a multitude of lesser lights. It is a liberal education to sit in this conference and hear the experiences of men who have fought and won many battles, and who know from accumulated experience what is wise and what is foolish in medical policies, economics and endeavors.

The great purpose of the American Medical Association, this coming year, is a thorough education of the profession in the wisdom, the policy and the technic of Periodical Physical Examinations of the Apparently Healthy. It is a rather anomalous condition that the medical organizations find that the public has already been convinced of the importance of this work and are eager for it, but the medical profession as a whole are not only lax in their enthusiasm, but are also entirely unprepared to make the examinations. It was stated that not one physician in ten, should a patient walk into his office and ask for a thorough physical examination, would be sufficiently conversant with the technic of examining an apparently healthy person for possible beginnings of disease, to make a satisfactory examination. Therefore, the American Medical Association finds itself in the position of having to advocate the postgraduate training of physicians to make these examinations as the first step in this program. Such a postgraduate training is to be offered by most of the constituent

state associations, through the county societies.

THE NEXT SOUTHWESTERN MEETING

It is entirely fitting that the next meeting of the Medical & Surgical Association of the Southwest shall be held in Tucson. While this meeting was left like a foundling on Tucson's doorstep, they will be grateful when it is all over, and will be eager for the chance to entertain the Association again.

Tucson, of all cities in the southwest, occupies a strategic position. They have some of the outstanding men of the entire west; they have excellent hospitals and sanatoria; they can, and most assuredly will, present a clinical program which will be a delight and an educational privilege. There only remains for the remainder of the southwest to prepare a program of scientific papers which will be commensurate with the clinical program of the Pima County Medical Society.

EL PASO COUNTY MEDICAL SOCIETY (November 2, 1925)

Meeting was called to order by Dr. J. A. Hardy, President, at 7:30 p. m., at University Club. There were thirty members and four visitors present.

Clinical Cases. Dr. W. E. Vandevere presented four cases of post operative mastoids, showing very good cosmetic results in each case.

Papers:—Dr. R. B. Homan read a paper on "Tuberculosis of Mediastinal Lymph Glands." Dr. Homan discussed very thoroughly, etiology, diagnosis and treatment of these cases. Paper discussed by Drs. Egbert, Leigh, Garrett, Laws and Casellas.

Dr. Orville Egbert presented a paper on "Pneumoconiosis." Dr. Egbert discussed very thoroughly differential diagnosis in these cases and showed several x-ray pictures of the disease. Discussed by Drs. Homan, Laws and Casellas.

Announcements: Drs. Leigh and Egbert made an announcement relative to the medical and surgical clinics to be held during the meeting of the Southwestern Medical and Surgical Association.

Drs. Laws and Vance announced that an informal luncheon would be had each day at the Del Norte from 12:30 to 1:30 during the Southwestern Medical and Surgical Association meetings, and requested that as many be present at these luncheons as possible.

Dr. Waite, Chairman of the membership committee of the Southwestern Medical and Surgical Association, asked that all those members of the Society who were not already members of the Southwestern Medical and Surgical Association make application for membership in same.

There was no further business and meeting adjourned.

H. H. VARNER, Secretary.

EL PASO COUNTY MEDICAL SOCIETY (November 9, 1925)

The meeting was called to order at 7:40 p. m., by President J. A. Hardy, at the University Club. There were thirty-five members and six visitors present.

Dr. J. A. Wright of Los Angeles showed a series of slides on endocrinologic conditions. Dr. Wright discussed these slides very thoroughly and showed where considerable progress had been made in the treatment of these conditions. Discussed by Drs. Werley, Crouse, Egbert, Leigh, Garrett and Hardy.

Dr. C. M. Hendricks read a paper on "Medical Propaganda," and brought out a good many points as to why the public should be informed as to propaganda on medical and health subjects. Paper was freely discussed by Drs. Garrett, Egbert, R. B. Homan, Casellas, Strong, Craige, Gallagher, J. W. Brown and Crouse.

Dr. E. D. Strong read a paper on "Medical Education," presenting the progress that had been made in this direction, and discussed the present premedical requirements, etc. Discussion by Drs. Safford, Branch, Crouse and Laws.

Report of Committee. Dr. E. D. Strong, Chairman of Legislative Committee, reported that the committee had evidence against certain illegal practices and desired to know the wishes of the Society for their disposal. Dr. W. H. Anderson made motion that the Chairman of the Legislative Committee place the evidence in the hands of the District Attorney and see what, if any, action would be taken. Motion was seconded by Dr. K. D. Lynch and carried.

New Business: Application of Dr. F. M. Barnes for transfer from the Logan County Medical Society of Oklahoma to the El Paso County Medical Society was read. Dr. Barnes was elected to membership in the Society.

There was no further business for the evening and the meeting adjourned.

H. H. VARNER, Secretary.

MARICOPA COUNTY MEDICAL SOCIETY (October 31st)

The Maricopa County Medical Society met in the basement of the Ellis Building, Saturday evening, Oct. 31st, 6:30 p. m., for dinner, the dinner being in honor of Dr. J. C. Wilson of Los Angeles.

In the absence of the secretary, Dr. O. H. Brown acted as secretary pro tem. The minutes of Oct. 3rd were read and approved with one correction.

Dr. J. C. Wilson took the floor and lectured to the society for an hour or more upon the simple questions of back-ache and backstrain. He emphasized that the back is made up of a number of joints, more or less movable, and on each vertebra there is an articular process facing laterally below and anterior-posteriorly above. When the body is twisted in extreme positions, it is possible for any two of these articulating processes to become partially or completely locked. The one treatment which is of value is to put the patient into the same extreme position in which the locking occurred and then ease up on him gradually; usually a cure comes about instantly. The doctor demonstrated his method of treating these cases upon our genial and obliging Dr. Couch. In the words of the president there was a tremendous amount of meat in this bony subject. The secretary was too absorbed to make careful notes.

Dr. Carson reported upon some of his studies of acidosis and alkalosis—work of Shafer and Hartman of Washington University Medical School, St. Louis.

MARICOPA COUNTY MEDICAL SOCIETY (Special Meeting, November 10th.)

A special meeting was called by the president to take place of the regular meeting of the third Saturday in November. The occasion was a visit to us by Dr. Edward Jackson of Denver, former president of the American Ophthalmological Soci-

ety and Professor of Ophthalmology in the University of Colorado.

Twenty members were present to partake of a dinner at the Arizona Club given in honor of the guest and to hear him speak. He talked extemporaneously regarding the theory of an ultramicroscopic organism from without causing cancer, and gave, from his experience and research, his reasons for believing otherwise.

Dr. Jackson contends that still the best thing to do is to remove suspicious collections of cells before malignancy is certainly proved, and not to depend on other factors. In the comment and discussion that followed Dr. Jackson proved himself a very able scholar who has reviewed the whole subject from many standpoints.

Dr. Harbridge introduced the speaker with some remarks as usual about the bright stars of the University of Pennsylvania, which were expected as Dr. Jackson was from that school. He described Dr. Jackson as the true type of physician scientist who is an honor and credit to the profession as well as a scholarly gentleman in speech and bearing. Those of us who later heard Dr. Jackson heartily agreed with his views.

Dr. Brockway in closing voiced the thanks of the society for the efforts of Dr. Jackson and invited him to visit with us again.

R. J. STROUD, Secretary.

COCHISE COUNTY (Ariz.) MEDICAL SOCIETY (December Meeting)

The Cochise County Medical Society met in regular session at the C. & A. Hospital, Bisbee, December 5, 1925. Doctors Causey, Wright, Cook,

Durfee, Darragh, Hawley, Cruthirds, Edmondson, Bledsoe and Fitzgerald were present. Dr. Fitzgerald was appointed to act as secretary in the absence of Dr. Lund.

Clinical Cases:—Dr. Darragh reported a case of typhoid that had repeated hemorrhages which were rapidly controlled each time by the use of hemostatic serum.

Dr. Durfee reports the occurrence of a number of cases of jaundice in the district. He suspects they are of the epidemic variety.

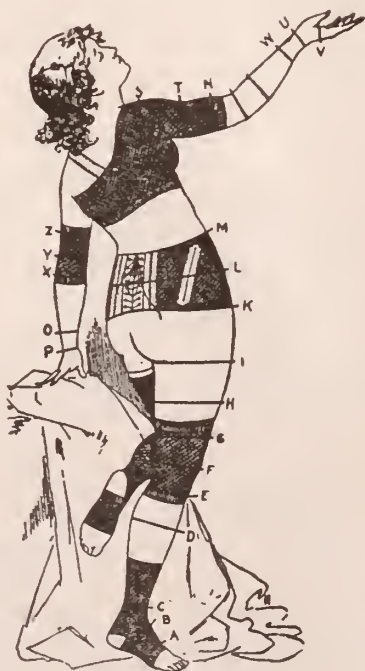
Dr. Wright gave an interesting account of the illness of Dr. Downs. A motion was carried authorizing the secretary to procure some flowers, and to give the doctor the best wishes of the society for an early recovery.

Regular Program:—Dr. Ferguson was not present, but his paper on the Advantages of Serum in Scarlet Fever was read by Dr. Durfee. Discussion was general and the general opinion seemed to agree with the essayist that the serum was of decided curative value. Dr. Wright gave an interesting review of the Dicks and the difficulties they have met in getting their serum properly made and on the market.

Reports on the Tri-State Meeting by Dr. Darragh. This was a concise account of the program, touching the high spots only, yet given in such a way as to afford us a splendid picture of what was accomplished.

Dr. Bledsoe gave an interesting exhibition of a number of stereo x-rays, demonstrating the value of this method in bringing out pathological conditions.

Dr. Fitzgerald gave a short resume of the prin-



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ciples of diathermy, demonstrated the machine and reported the conditions in which he had found it useful.

Election of Officers

President Dr. E. Darragh
Vice President Dr. J. Cook
Secretary Dr. A. E. Cruthirds
Censor Dr. C. H. Lund
Delegates..... Drs. N. C. Bledsoe and F. T. Wright
Alternates..... Drs. R. B. Durfee and E. W. Adamson

On motion the meeting then adjourned.
G. H. FITZGERALD,
Sec. Protem.

SANTA FE COUNTY (N. M.) MEDICAL SOCIETY

Dr. Allen K. Krause, of Baltimore, addressed the society September 28 on the chemical pathology of tuberculosis, tuberculous infection, immunity, and tuberculins. The previous evening he addressed an audience of patients and visitors at Sunmount Sanatorium on "Tuberculosis and Humanity." Dr. Krause has the rare faculty of being able to present interesting and instructive talks to lay audiences, as well as to physicians.

At the regular meeting of the society held in September, a discussion was held concerning the "summer complaint" or bowel trouble that seems to be epidemic hereabouts every spring and summer. Since the incidence of these epidemics seems uncertain, it was thought that a careful analysis of this condition ought to be undertaken, if possible with the cooperation of the U. S. P. H. S.

At the regular meeting held in November, Dr. George Lockett, Director of Public Health for New Mexico, stated that his department is urging the cooperation of all physicians of the state in gathering data concerning this bowel condition, both by sending in samples of fecal matter and blood for analysis, and by filling out a symptom questionnaire that is being sent to them. These data will be used by an officer of the U. S. P. H. S., who is to be sent to New Mexico next spring to make a study of the epidemic and suggest relief measures.

The society passed a resolution to the effect that, inasmuch as the present Santa Fe milk ordinance is incomplete and obsolete, it is the wish of the society that a modern milk ordinance such as other up-to-date communities employ be adopted at once by the city of Santa Fe.

ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING

(Nov. 14th, 1925).

The regular monthly meeting of the Staff of St. Joseph's Hospital, Phoenix, was held in the lecture room of the hospital Saturday evening, November 14th. The following brief summary of cases to be discussed had been sent to each member of the staff:

Case 1. Physician, Dr. Harry J. Flech; Record Critic, Dr. Harlan P. Mills.

Diagnosis: Epilepsy. Patient dates illness back three years when he had an attack with temperature of 104, spitting pus and blood. This attack lasted 3 or 4 weeks and he has had two since. Four days before final admission patient had convulsions and was sent to hospital, staying a day and a half; after leaving hospital convulsions returned and he re-entered.

Pupils react; slight rigidity of neck muscles; a few rales throughout both lungs; slight inguinal glands. On 10/18, paralysis of left arm and side, with severe headache; on 10/20 semi-conscious. Expired 10/21.

Case 2. Physician, Dr. Chas. S. Vivian; Autopsy Record, Dr. H. P. Mills; Record Critic, Dr. W. O. Sweak.

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LABORATORY:—Under direction of a competent pathologist; immediate frozen sections and diagnosis, when desired. All blood, serological and chemical examinations promptly performed by competent technicians under direct supervision of the pathologist.

X-RAY AND RADIUM:—Fluoroscopic and radiographic work by competent radiologist. Urological department adjacent to x-ray room for prompt pyelographic work. High voltage x-ray equipment for pre-operative and post-operative therapy. Radium available for cases requiring this treatment.

BASAL METABOLISM:—This work is in charge of a competent metabolist and can be done at bedside or in metabolism room.

DIETARY:—A trained dietician working in conjunction with the clinical laboratory makes possible the accurate study of patients whose diets need to be adjusted, particularly diabetics who require the determination of carbohydrate tolerance and insulin requirements.

Any physician or surgeon in the Southwest, who cannot accompany patients to Phoenix, is invited to refer them direct to the Hospital. They will be placed in charge of ethical members of the Staff.

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Diagnosis: Tuberculosis of kidneys and seminal vesicles; hypertrophied prostate.

Man, age 50; had old tuberculosis many years ago. For past two years has had frequency and urgency, with fulness and pressure in perineum. Has been catheterized in the office for two weeks, reducing residual from 24 to 16 ounces.

Chest has coarse rales and broncho-vesicular breathing on both sides. Heart rapid with two and fro murmur in tricuspid area.

Cystotomy for bilateral renal sepsis and obstruction.

Patient had been having uremic symptoms which persisted after operation and patient died two days later.

Autopsy findings will be given by Dr. Mills.

Case 3. Physician, Dr. R. W. Eaton; Record Critic, Dr. H. B. Gudgeal.

Nine year old boy severely burned by contact with high voltage wire, going in right hand and out the left foot. Seemed to be recovering from burns, when symptoms of tetanus developed on sixth day and boy died in spite of large doses of antitoxin.

Case 4. Physician, Dr. Fred G. Holmes; Record Critic, Dr. J. J. McLoone.

Diagnosis: Pulmonary tuberculosis and tuberculosis of superior maxilla.

Patient has been sick since flu in 1918. Diagnosed as tuberculosis in 1921, and was off work for nine months. Resumed work in April, 1921, and worked until May, 1925. Had cough all this time. In spring of 1923, began to have pain in left maxillary sinus, which was drained through tooth socket. In June, 1924, left antrum opened and polyps removed. Swelling and pain did not stop and finally infected area broke through into the mouth in May, 1925, and has been draining since. Several hemorrhages from sinus and small pieces of bone have come away at times. Under treatment with Alpine lamp.

Patient died after several large hemorrhages from the antrum.

Case 5. Physician, Dr. G. B. Couch; Record Critic, Dr. Geo. M. Brockway.

Two weeks before admission, patient had severe pain in upper abdomen which gradually extended down into groin. Tenderness and muscular spasm in epigastrium and lower abdomen. Bimanual shows uterus slightly enlarged, with cervical discharge, and mass on both sides of the pelvis. Right side extremely tender. Leucocytosis mild.

Consultant found profuse vaginal discharge and apparently one month pregnancy present. Diagnosis of salpingitis and questionable pregnancy by consultant.

The procedure of this meeting was to be as follows:

The physician or surgeon in charge of the patient is asked to present a condensed record, containing all the essential facts about the case, adding anything of importance which was omitted from the record. In order to do this properly the doctor should go to the Record Room and condense his presentation from the clinical record, BEFORE THE MEETING. It cannot be properly done if attempt is made to read it from the record at the time of the meeting.

For each case, there will be selected a RECORD CRITIC who will also study the clinical record and present his criticism of it. The record critic may also present, in discussion, any information about the subject opened up by the case under consideration, whether this is from his own experience or from the literature. The record critic should also make his study of the case in the Record Room BEFORE the meeting. No staff member can do justice in this respect without preparation and study of the case before hand.



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EL PASO

TEXAS

There will be no general discussion of the cases. Any staff member may ask questions, either to get information, or to bring out points omitted in the discussion. These questions may be answered by the physician in charge, or by the record critic. If they cannot answer, the chairman may call for answer from the staff, *without discussion*.

In the absence of the secretary, Dr. Willard Smith was asked to take notes on the discussions and present these with his impressions, as the official record of the meeting. His report of the meeting follows:

At the last meeting of the Executive Committee, a new method of conducting our staff meetings at St. Joseph's Hospital was proposed and as you expected to be out of the city, you asked me to make a few notes as to how the new plan worked out. This is an attempt to tell about it.

At eight o'clock last night, most of the following doctors were present, and the rest of the list filtered in and out in the course of the evening: Drs. Holmes, Bailey, Gudgel, Thayer, Couch, O. H. Brown, Brockway, Wylie, Smith, Shelley, Vivian, Eaton, Yandell, Wilkinson, Purcell, McIntyre, Milloy, E. H. Brown, McLoone, Kimbul, Fatteburt, Drane, Sweek, Matanovitch, Thomas and Mills.

The meeting was called to order by our genial patriarch Dr. Wylie and he opened the sermon by a few appropriate remarks about the new system. He stated that each man whose case was under discussion, was in turn to be placed in a position very much resembling a witness stand, and then he had the privilege of presenting his case. Immediately following him, an appointed critic was to discuss the case and the issue involved, following which—in an orderly and courteous manner—questions could be asked of the doctor who was on the stand, but miscellaneous discussion about the room was to be taboo.

Pursuant to this plan, Case 5 was called first and the first speaker was Dr. Couch. He told the story of a patient, whom he said was a female and who had two weeks before admission, had severe pain in the upper abdomen, which gradually extended down into the groin. He said the patient had been examined at Prescott but whether that was the cause of the symptoms he left undetermined. He says the patient had a mass on the right side and a mass on the left side but failed to state whether it was on the outside, inside, top side or what side. He said that she had a white count varying from fourteen to sixteen thousand. He also said that he had her examined by two consultants and that the first consultant said that the uterus was enlarged and she had a cervical discharge and made a diagnosis of salpingitis and that later another consultant said that she was pregnant one month and had salpingitis, and she was discharged from the hospital.

Doctor Brockway then proceeded to function as critic. He remarked that the personal and social history of such a case is quite important. He found in the record that she had been in ill health for three or four years but nothing to state whether this was a primary attack or whether she had had previous attacks; that there was no bacteriological examination. He found that the patient had pain in the right epigastrium, and asked just where that was located. He stated that it is often impossible to differentiate between appendix and tubal inflammation without operation. He noted that the character of the cervical discharge was not stated. He called attention to the fact that there was no record of the findings or opinion of the first consultant. He found that the second consultant found an enlarged uterus but made no record of lateral masses but diagnosed salpingitis. He called attention to the improbability of pregnancy and salpingitis co-



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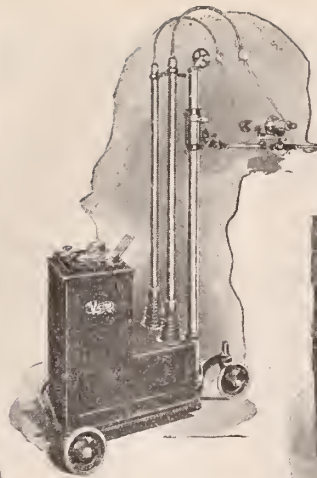
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existing, particularly after a possible continuation of salpingitis for three or four years. He also stated that there was no menstrual record. Then he delivered a very clear dissertation upon the method of procedure in pelvic inflammation by saying that long standing palpable masses had better be operated. He stated as his opinion that a primary infection should not be operated for five or six weeks. At this point it occurred to me that the old fashioned two or three year wait seems to have been shortened. He stated that in vicious fulminant attacks of pelvic inflammation posterior vaginal incision and drainage should be done. His remarks were especially clear and to the point and altogether made the men who failed to attend the meeting miss a very fine dissertation upon pelvic sepsis in women. After he sat down the staff was invited to ask questions but none were asked, much to the relief of Dr. Couch.

Case 4. Dr. Holmes then presented a case which had been diagnosed as pulmonary tuberculosis and tuberculosis of the superior maxilla. Nobody seemed to notice that the maxilla is always superior. It seems that this patient was very sick when he came to Dr. Holmes from somewhere in the east and that he had had tuberculosis for at least four years, and for two years had had pain and infection of some sort in the left maxillary sinus, which had been drained through a tooth socket. One year previously, the left antrum had been opened and polyps removed. The swelling and pain did not stop. Finally the infected area broke through into the mouth. In May, 1925, he had thrown off several bony sequestra and had severe hemorrhage from the sinus. He finally succumbed to a hemorrhage which was stated to be of two quart quantity. He had been treated by heavy x-ray in the east and was here given

Alpine lamp treatment. This case also had two consultants, first of whom diagnosed carcinoma and the second possible tuberculosis of the antrum.

Dr. McLoone served as critic for this case and stated that operation for polyps is always followed by cure if it is properly done, but as this patient did not get well, the question of possible malignancy arose. He stated that there was no record as to the condition of the lymphatic glands or as to cachexia. He stated that the patient had pain, hemorrhage and foul discharge, which pointed to malignancy, but had no evidence to support a diagnosis of tuberculosis. He said that he had never seen a case of tuberculosis of a sinus, that only a dozen such cases were on record and the diagnosis was doubted in all of them. He called attention to the fact that a tuberculous ear is not painful and by analogy tuberculous sinuses should not be painful. After explaining quite lucidly his reasons, he left the impression that he believed that the man had had a malignancy of his antrum. Dr. Mills demonstrated the x-ray films of this case, then questions were called for. Dr. Yandell asked what operation had been done. Dr. Holmes stated that none had been done here. Dr. Sweek asked if there was any tissue report; how old was the patient; was syphilis ruled out; did he have antisyphilitic treatment. These questions were answered by saying that an unsatisfactory report of a tissue examination had followed the patient from the east; that he was forty-two years old; he had no history of syphilis, had a negative Wassermann, and had not had antisyphilitic treatment. Dr. Bailey asked if the moth eaten appearance of the x-ray pictures might not indicate osteomyelitis. The answer was—I don't know. Dr. Bailey also asked if it was not a fact that in chronic sinus trouble you frequently have

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tuberculosis of the lungs. Answer: more apt to have bronchiectasis. He then asked if it is not a fact that cancer and tuberculosis in the same patient is very rare. Answer: it is so believed. That ended the second case.

The third case (Case 2 above) was one of Dr. Vivian's, in which he stated that diagnosis of tuberculosis of the kidneys and seminal vesicles and hypertrophied prostate had been made, though the patient had died of dilated stomach and had evidences of hypostatic pneumonia, which followed a violent sepsis of the entire urinary system. He stated that this man was fifty years of age; had had tuberculosis many years ago; for the past two years had had frequency and urgency, with fullness and pressure in the perineum; that immediately preceding the time that he entered the hospital he had been catheterized, at the office, each day for two weeks, reducing his residual urine from twenty-four to sixteen ounces. He stated that the man was semicomatose when he came to the hospital; that cystoscopy was done easily with a 24 French cystoscope. He said that suprapubic cystotomy was done for drainage of the infected urinary tract.

Dr. Mills reported on the autopsy, making the statement that pus was found in both kidneys and presenting specimens showing healed lesions of tuberculosis in both kidneys, and said that he had seen several such cases. He also said that the man had bilateral pneumonia.

Dr. Sweek served as critic in this case and preceded his remarks by heartily congratulating the Executive Committee upon having devised a very assinine method of discussion. He called attention to the fact that family history had not been obtained though the patient had been for two weeks an office patient and was brought to the hospital in coma. He noted that the working diagnosis was hypertrophied prostate and called attention to the fact that hypertrophied prostate does not alone cause temperature, and this man had a temperature of 101 plus on entering. The preoperative diagnosis was bilateral renal sepsis, the operation suprapubic cystotomy, and he called attention to the fact that the autopsy report showed an incision from the pubis one inch below the umbilicus. He maintained that suprapubic cystotomy should be done through a one and one-half inch incision. Whereupon, Dr. Vivian demonstrated by blackboard drawings the reason for pushing back the peritoneum and making the bladder opening higher up so that when the bladder contracts, drainage will take place from the low dependent portion, thus favoring complete bladder drainage. Dr. Sweek stated that complete bladder drainage could be accomplished with a catheter and that there was no indication for suprapubic drainage if a 24 French cystoscope could be inserted. Dr. Vivian replied that complete bladder drainage could not be accomplished by catheter. Dr. Sweek suggested that the patient had pneumonia when he came to the hospital, which was countered by Dr. Vivian calling attention to the fact that red hepatization occurs in the first twenty-four hours and that hepatization in this case was not gray. The discussion was too rapid for me to get any more notes but considerable ground was covered, very much to the edification and entertainment of the assemblage.

The fourth case (Case 3 above) was presented by Dr. Eaton and was that of a nine year old boy who had been severely burned by contact with a high voltage wire. He seemed to be recovering from the burns, when on the sixth day he developed tetanus and soon died, in spite of large doses of tetanus antitoxin given intravenously. Dr. Eaton stated that a punctured wound was found on the opposite foot from

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the burned one, which probably had been received ten days or so before the burn, and suggested that this was probably the point of inoculation with tetanus.

Dr. Gudgel acted as critic in this case and gave a very clear review of the pathology of electric burns. When questions were called for Dr. Brown asked if there was suppuration of the burned toe. This was answered—yes, but there was none in the toe which had the punctured wound. Dr. Wylie asked if Dr. Eaton had ever found in history, a case of tetanus from burns. Dr. Eaton answered—yes, he had seen such cases.

As the hour of ten had then arrived the meeting was brought to a harmonious close and each one departed in a happy frame of mind.

I do not know whether the experiment is going to be a success or not. The meeting was a good one. There seemed to be some tendency to override the limitation of discussion from about the house but the new method certainly does help to bring forth less acrimony.

WILLARD SMITH.

ARIZONA DEACONESS HOSPITAL (Phoenix) STAFF MEETING

November 28, 1925.

Regular monthly meeting of the Deaconess Hospital Staff was held Saturday evening, Nov. 28th, newly elected chairman, Dr. John Wix Thomas, presiding.

Thirty members of the staff, with the superintendent, Mrs. Sexson, and manager, Mr. Sexson, were present.

Dr. Thomas announced the appointment of the following committees for the ensuing year:

Surgical: Dr. Willard Smith, chairman; Drs. Geo. E. Goodrich, W. C. Ellis, A. M. Tuthill, C. B. Palmer.

Medical: Dr. S. D. Little, chairman; Drs. H. B. Gudgel, I. L. Garrison, F. J. Milloy, R. W. Eaton.

Diagnostic: Dr. Kimball Bannister, chairman; Drs. E. L. Hicks, F. G. Holmes, L. Dysart, A. A. Shelley.

Records: Dr. W. W. Watkins, chairman; Drs. R. J. Stroud, Victor Randolph, L. D. Dameron, Coit Hughes.

Obstetric: Dr. J. A. McIntyre, chairman; Drs. Geo. M. Brockway, Harry J. Felch, J. M. Greer, T. E. McCall.

Urological: Dr. Chas. S. Vivian, chairman, Dr. H. M. Purcell.

Pediatrics and Orthopedics: Dr. H. R. Carson, chairman; Drs. Edgar H. Brown, L. H. Thayer, G. B. Couch, E. H. Charvoz.

Mrs. Sexson, superintendent of the hospital, reported upon the statistics of the institution for October.

The proposed amendment to the constitution, providing for vacation from staff meetings during four summer months was adopted.

The subject for study was ANEMIA.

The first case was one of Pernicious Anemia, presented by Dr. E. W. Baum:

Man, beyond middle age, family and personal history negative.

First sign of present condition showed in 1919: had a near collapse in 1920 and was taken to a hospital where diagnosis of pernicious anemia was made; red count then was 1,500,000 and hbg. 45%. Was transfused three times and remained apparently well for 18 months, attending to his work. In 1922 (December) was found in as bad or worse condition than in 1920; was given sodium cacodylate for a few months and went home with red cells 4,000,000 and hbg. 80%; the cacodylate was given daily for six months in doses up to 15 grains daily in latter part of treatment. Returned in October, 1923, very weak, reds 1,000,000 hbg. 45%, whites 6,000. Was given cacodylate of soda as high as 15 grains daily fairly regularly and improved rapidly; reds returned to nearly 4,000,000. In September, 1924, he returned in a serious state, and was transfused with 400 c.c. of blood; with arsenic as before and iron; he again improved rapidly. September, 1925, he went to Battle Creek, again in serious condition; he was transfused there with only slight im-



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provement. He went home and then came to Phoenix in a critical condition, reds 960,000, whites 2,300. He has not responded to cacodylate this time. After second transfusion he improved rapidly, reds jumping to 2,300,000. This man has been a difficult case in that he invariably discontinued treatment whenever he returned home. He was a hard working man and did not take good care of himself.

The Medical Committee had been asked to handle the general discussion of anemias, based on six cases taken from the hospital records.

Using as a text, one of the cases with diagnosis of Chlorosis, Dr. H. B. Gudgel presented the following discussion of this type of anemia:

"By anemia we mean a lack of, or diminution in, the amount of or volume of blood, or a deficiency of red cells or hemoglobin; either or all of these. Plasma changes, though but little understood, because of the lack of characteristic changes, are now becoming very important consideration in many cases. The knowledge we now have of anemias, while more complete than formerly, still needs classifying.

"The first group of a very unsatisfactory classification are the Primary Anemias, or the more or less obsolete Idiopathic Anemia. This group includes those anemias whose cause is known. There is a primary form of aplastic anemia, arising from failure in function of the blood forming organs, which usually results in death.

"In times past, probably all of us have made diagnoses of primary anemia in cases presenting the usual pallor of the skin, with somewhat pale mucous membrane, lack of vitality, muscle weakness, inattentiveness, listlessness, complaints of headache, breathlessness on exertion, palpitation, attacks of faintness, change in disposition, constipation, poor appetite, disorders of menstruation. These symptoms are usual to many girls about puberty; Fow-

ler's solution in five minim doses after meals have brought about really wonderful changes. This primary anemia has, in recent years, been lost or instances of it are called by other names.

"Coming to a discussion of the condition known as Chlorosis, which probably should be calssed with the anemias. While the blood picture of chlorosis is peculiar and of importance, it represents only a part of the symptomatic picture. The essential nature of this affection is not known, but in recent years the conception must in accord with the facts is that which associates the causes with disturbances in internal secretion, particularly the ovaries. As there is no great hemolysis in chlorosis, it may be assumed that the blood changes are due to deficient blood forming lymph. Chlorosis occurs between the ages of 12 and 32, the latter years being usually relapses; it is most common between 14 and 24 years, usually but by no means always in the middle classes. Besides symptoms already mentioned, are distress after eating followed by nausea and vomiting; usually an unnatural craving for improper food; usually a hyperacidity; pains of varying intensity in various parts of the body; insomnia; vasomotor disturbances; emotional upsets; sweating of hands, occasionally with distinct odor of perspiration from arms; menstrual disturbances, usually amenorrhea rather than menorrhagia; complexion pale, sickly, slightly yellow or greenish color; seldom much loss of weight; apex beat of heart more distinct than in health; usually a soft blowing systolic murmur at apex or base, or both, with characteristic hum over veins of neck; edema of feet and eyes common; rarely fever; urine may show a slight trace of albumen, otherwise nothing of importance.

"Blood Findings: Blood as it flows from the vein i. pa'e; reds 4,500,000 to 3,000,000; hemoglobin 40 to 60%; the cells may be smaller than normal, ir-

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regular in shape; whites about normal but there may be a relative lymphocytosis; the severe cases show a red count as low as 1,500,000 and hemoglobin as low as 10%.

In diagnosis, care must be taken not to forget tuberculosis, nephritis, peptic ulcer, neurasthenia in patients from 25th to 35th year, and, lastly, hypothyroidism is frequently associated with chlorosis.

"We should mention next the large group of secondary anemias due to some hemolytic agent; this may be a chemical the nature of which is not definitely known or it may be the toxin of micro-organisms. Certain bacteria, like the hemolytic streptococci, produce powerful blood destroying toxins, bringing about extreme anemia in a short while. The hemolysis produced by the malarial plasmodium is also characteristic, here the direct destruction of the red cells by the parasites being equally important.

"When we talk of primary anemia, it would seem to be more accurate to call it an anemia of unknown cause, and in the case under discussion, chlorosis would probably be the better diagnosis."

DR. I. L. GARRISON then discussed a case of simple anemia, as follows:

Female 43 years, American, entered Oct. 26th, discharged Nov. 8th, duration of treatment 13 days. Working diagnosis, fibroid of uterus, with incomplete abortion; final diagnosis, anemia; was in hospital for observation. Condition on discharge, good; some afternoon temperature each day. History: Oct. 20th began menstrual flow after riding some distance over rough roads. By 9 p. m. had passed small mass which was disposed of. Oct. 26th sent to hospital for observation.

This is a case of simple anemia, probably due to uterine hemorrhage plus toxemia. The hbg. was low, 40-50 per cent. The erythrocytes ranged around 2,500,000. The patient was weak and dizzy, with considerable menstrual flow and slight fever during

her stay in the hospital. She was discharged by wheel chair with slight fever persisting. The doctor in charge of the case deserves commendation for his diagnosis and management of the case.

DR. F. J. MILLOY reviewed the record of a pernicious anemia whose terminal period was spent in the hospital. The blood picture and the autopsy findings were presented and discussed.

DR. R. W. EATON discussed three cases of anemia, giving the differential points between the various types of anemia. This discussion will be published in a future issue of the journal.

DR. H. L. GOSS discussed the blood pictures in anemias and the differential diagnosis as follows:

To give the blood picture of anemia in the short time of fifteen minutes is an impossibility, hence this synopsis will deal with the more important types, treating briefly upon classification before giving details of the blood changes.

Anemia may be described as a deficiency of hemoglobin, associated with a diminution in the number of red cells. The process of red cell production and destruction is going on constantly in the body, and any disturbance of the hemogenic-hemolytic balance either by lessened blood formation, loss of blood, or red cell destruction, will result in anemia. Hemoglobin estimation and the red cell count give us merely the relationship between cell production and cell destruction, which may be demonstrated in the case of the former by a count of the percentage of reticulated red corpuscles, and in the latter by an estimation of the urobilin excretion in the feces of duodenal contents.

Vogel has divided anemias into four general subdivisions, some of which overlap; he terms the first hemolytic anemias, in which the urobilin of feces is very high and appears in urine; the second is anemia due to loss of blood from the body, where



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urobilin of feces is low; the third, anemias due to failure in hemogenesis with no increase of urobilin in feces; the fourth, anemia due to moderately increased hemolysis together with diminished bone marrow-function or destroyed bone marrow, where urobilin of feces is not appreciably increased.

I. The first general division is subdivided into two sub-classes:

1. With the blood picture of pernicious anemia, including the magaloblastic type of blood regeneration.
 - a. Progressive pernicious anemia.
 - b. Severe dibothrocephalus anemia.
 - c. Rare cases of anemia due to carcinoma, syphilis or puerperal toxemia with production of a strong hemolytic poison.
 - d. Rare cases of hemolytic jaundice.
 2. Without the blood picture of pernicious anemia the difference probably due partly to the element and partly to the nature of the hemolytic agency.
 - a. Most cases of hemolytic jaundice with excessive fragility of red cells.
 - b. Malaria.
 - c. Hemolytic poisons, as mushrooms, potassium chlorate, nitrobenzol, etc.
- II. Loss of blood from body.
- a. Anemia of acute hemorrhage.
 - b. Anemia of chronic hemorrhage.
- III. Anemia due to failure of hemogenesis.
- a. Chlorosis.
 - b. Aplastic anemia.
 - c. Benzol poisoning.
- IV. Anemia due to moderately increased hemolysis together with diminished bone marrow function or destroyed bone marrow.
- a. Vast majority of secondary anemias.
 - b. Anemia of leukemia.
 - c. Bone marrow tumors.

In discussing the blood picture in the various anemias we shall take up four types: pernicious anemia, chlorosis, myelogenous leukemia and lymphatic leukemia, omitting the ordinary secondary anemias which are characterized by a low hemoglobin content and diminished red cell count and a temporary leucocytosis.

In pernicious anemia the red blood cells are actively destroyed by an unknown toxin, (thought however by Kahn and Torrey of Cornell University Medical College to be due to the bacillus of Welch), associated with abnormal regeneration of red blood cells by the bone marrow. The most important laboratory findings are the great increase of urobilin in the feces and urine, the absence of free hydrochloric acid from the gastric juice and the blood picture. The red cell count ranges in extreme cases from 750,000 to 2,500,000 with an average of about 1,500,000. Hemoglobin content is from 20 to 25%. Color indexes from 1.1-1.5. In the stained specimen anisocytosis, poikilocytosis, nucleated red cells, polychromia of the red cells, numerous megaloblasts, decreased blood platelets and increased lymphocytes are commonly noted.

Chlorosis is an anemia of defective blood formation confined almost exclusively to girls, following the age of puberty, and is characterized by a marked decrease of hemoglobin with a slight lessening of the number of red cells. Hemoglobin, 35-40%. Reds, 3,500,000 to 4,000,000. Color index .4-.5. In the stained slides the red cells are nearly uniform in size, slightly lessened in diameter, and exhibit achromia which gives the cell a ring-like appearance. The leucocytes are slightly diminished in number, averaging about 7,000 with a definite increase in the large mononuclears. Blood platelets are increased. Eosinophiles are diminished.



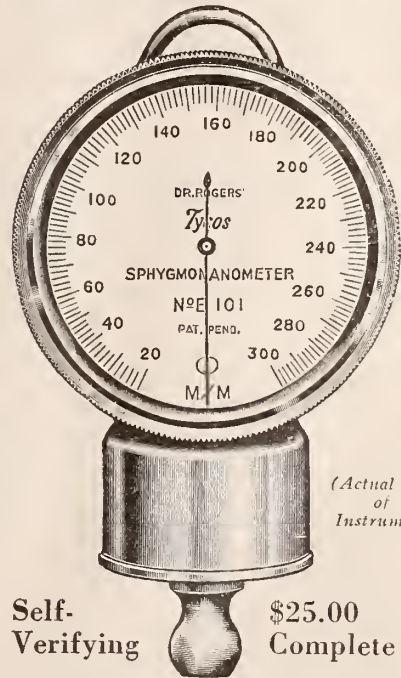
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Myelogenous leukemia, owing to its insidious onset is recognized generally in its chronic form, chiefly by the enormous number of leucocytes which range from 100,000 to 1,000,000. The neutrophilic myelocyte makes up about 30-40% of these and the polymorphonuclears are equal in number. Lymphocytes are diminished and normal eosinophiles, eosinophilic myelocytes and large mononuclears make up the remaining percentages. Megaloblasts are rarely found. The red cell count is usually below 3,500,000 with a moderately low color index. Accurate estimation of hemoglobin is difficult owing to the cloudiness produced by the large amount of leucocytes. Blood platelets are variable but generally increased.

Chronic lymphatic leukemia is the usual form which may extend over years and is characterized by an enlargement of the lymph nodes. The leucocyte count is not so high as in the myelogenous form but is usually around 100,000. Lymphocytes constitute 90-98% of the total number of cells in the differential count and resemble the small lymphocytes seen in normal blood. The red cells are usually reduced about one-half and the color index is a little below normal. The hemoglobin, late in the disease, is greatly reduced. Blood platelets are generally reduced."

Dr. Orville Harry Brown substituted for Dr. Drane and presented a review of recent literature on pernicious anemia as follows:

H. Milton Conner says pernicious anemia is distinguished by the almost characteristic blood picture, sore tongue, achlorhydria, paresthesias and other nerve phenomena, extreme weakness and ordinarily without much loss of flesh. The usual blood picture is low hemoglobin and erythrocyte count, high hemoglobin index, marked irregularity in shape and size of red cells, and frequent presence of megaloblasts; sufficient attention is not paid to the sore tongue and its atrophic appearance, the achlorhydria and the neurologic signs and symptoms and too much is expected of the blood examination; the diagnosis may be made before the blood picture is characteristic. A valuable test is the Schneider test for the amount of urobilin and urobilinogen in the material from occasional tubing.

Henry W. Weltman writes that it has been shown in recent work that achlorhydria of pernicious anemia is not the result of atrophy of the gastric mucosa, as heretofore taught, but is a primary constitutional familial deficiency present from infancy; members of the family of pernicious qualities are often afflicted with achylia, Wallman says of the symptoms:

"Although they do not have pain, they suffer with persistent paresthesias, rapid fatigue, disturbances of taste, sore mouths, flatulence, diarrhea and vague visceral sensations, all of which lead them to the conviction they so frequently express, that there must be something serious the matter." He emphasizes the importance of pernicious anemia as a cause of mental disturbances, that pernicious anemia is more common than is generally believed and that it is apt to escape detection.

E. Muelengracht points out that physicians should be careful to study heredity in all cases of pernicious anemia.

H. Z. Giffin and C. F. Dixon are attracted by the gastro-intestinal origin of pernicious anemia, because of the marked gastro intestinal symptoms. He comments upon the abnormality of the bile and the increase of bile pigments. He says toxic substances formed by protein have been used to produce experimental anemia; also colon bacilli are extremely abundant in the small intestine and even the stomach in pernicious anemia and a toxic substance may be formed from them. They comment upon the anemia that results from mechanical obstruction of large bowel and the hope that might be offered by

colostomy. They had operated upon one patient who showed great improvement for four weeks, but died of hemiplegia. Seiderhelm did ileostomy on three patients. Two succumbed from the operation, other improved with character of the ileostomy stool improved.

G. Lepehne believes in the intestinal origin of pernicious anemia; he failed however to find signs of inflammation in the intestinal wall and mesenteric lymph nodes.

Christian A. Herter first called attention to the presence of bacillus aerogenes capsulatus Bac. Welchii in the intestines of normal persons. This is an anaerobic, gas forming bacillus. He found these organisms in great numbers in cases of pernicious anemia, and noted their diminution with improvement of the patient's symptoms.

L. M. Noench, M. C. Kahn, and J. C. Torrey analyzed 72 stool specimens from 33 cases of pernicious anemia of various duration and showed in practically every case an unusually large number of viable organisms, of which B. coli, streptococci, B. Welchii, and at times B. acidophilus were the most prominent types. "These findings indicated that the flora of the large intestine is of an actively growing, proteolytic, fermentative type. The most significant feature recorded by these examinations would seem to be the uniformly high counts for B. coli and B. Welchii; pure cultures of B. Welchii were isolated from 26 of these cases."

In the event that pernicious anemia is due to a poison and such is apparent—the bacteria must produce a chronic infection and have an extoxic poison. This Cornell has proven the B. Welchii does.

M. C. Kahn and J. C. Torrey, after having noted anew that the fecal flora in pernicious anemia cases—33 were examined—showed the constant presence of large numbers of B. Welchii, made experiments with a toxin from these organisms upon monkeys. Injection of the toxin produced drop in erythrocytes and hemoglobin percentage, a rise of the color index, marked anecytosis with many macrocytes and a moderate degree of poikilocytes. The changes were relative to the amount and number of injections of the toxin.

E. J. Wood did a large series of feedings and inoculations and concluded that Monilia psilicosis has toxins capable of producing definite hemolytic changes of pernicious anemia.

Hurst found colon bacilli in the stomach and unusually abundant in the small intestines in pernicious anemia.

B. S. Kline isolated the proteus bacilli in pure culture from the bone marrow of various bones at autopsy of what had appeared to be a typical case of pernicious anemia. Animals inoculated with these cultures showed signs of pernicious anemia.

F. Luchach reports that the majority of B. coli strains which were isolated from patients with pernicious anemia had the same morphologic and cultural characteristics as those B. coli strains that are immune against the action of the bacteriophage.

C. A. Dixon, J. G. Burns and H. Z. Giffin says colon bacilli in the stomach and small intestine under certain conditions may produce dangerous toxic substances and that the absorption of hemolytic myelotoxic or neurotoxic substance from the small intestine and ceco-colon has been regarded as more than a probability. These and other considerations led the doctors to do ileostomy upon six cases of pernicious anemia; all of the six showed improvement—striking in some. Two died from intercurrent trouble. Two have done unusually well. Two have had recurrences.

The authors agree that flushing the colon with sodium chloride solution may be inadequate and may keep the procedure from being a thorough success;

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